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ANOTHER BOOK OF SCRAPS,

PRINCIPALLY

RELATING TO NATURAL HISTORY,

WITH

Thirty-six Lithograph Illustrations from Pen and Ink Sketches of Wild Birds.

BY CHARLES MURRAY ADAMSON.

Newcastle-upon-Tyne:

ANDREW REID, PRINTING COURT BUILDINGS, AKENSIDE HILL, AND 12, COLLINGWOOD STREET.

MAWSON, SWAN, & MORGAN, GREY STREET.

1882.

STATIONERS' HALL.]





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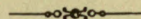
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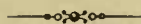
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TO THE READER.



PERHAPS I ought to explain, it may be thought, the very unsatisfactory reason for my publishing this humble attempt at a book, which I will do as shortly as I can. This is not my first production; but the other is the parent of this one. I began to illustrate the former book, and I found so much amusement in the preparation of the plates that I got quite fond of the work. First the subject was to be chosen, then the arrangement of the objects to be represented had to be considered, then they had to be drawn and traced and taken to the printer, and as each was done it was a continual source of amusement and excitement to see how it turned out—hoping and expecting each succeeding one to be better than its predecessor. Now I admit being pleased to see the representations as they turned up, but regretted always they were not more satisfactory to myself; and I must also admit that the pleasant occupation and the kind of excitement were amusing, and caused a sort of irresistible temptation to go on. We all like some occupation, and I strongly recommend such a harmless one as this to your notice and consideration.

Now, having explained this much, I, without permission, take the liberty to dedicate this book, such as it is, to each one of you, hoping you either do or will condescend to take some little interest

in it, as it treats almost exclusively of Nature's works and the manner by which man has utilized some of them. There are, I fear, numbers of persons who consider such matters much too commonplace, and entirely beneath their notice; from such I expect no sympathy. Admiration for, and the love of, Nature's productions causes us to observe them, and pay them some of the attention they were all evidently intended to excite in us. There is really no substance, one may so express it, naturally created, but what is worthy of being studied; and amongst such substances some new idea is constantly, and will be for ever, casting up.

How much soever the drawings fail to represent what was intended, I venture to hope they will be received with every allowance for their inaccuracies and my want of ability to make them more like what each of you may expect to find them. They are very rough, and can only give some idea of the habits of the different birds, and this is all that is intended. The very best illustrations generally only imperfectly represent a particular species, as many individuals of these often vary so greatly in appearance with the seasons, and in the sexes; and if we take the extreme view of the matter, no two things in nature ever are or were exactly alike.

Should you ever have considered the subject, you will have probably thought of the impossibility to make true copies of animals in motion, in consequence of the very short space of time they are in the exact position you may wish to represent them in; and I therefore warn you not to expect too much from these very imperfect representations of birds, each of which is merely a vague idea of what the birds would be like, culled from the imagination of what has been seen, and what one may say has been impressed on the brain, and from it transferred so as to

be shown to others. Such work is in some measure similar to language, which conveys to others (but temporarily only, unless also written) the ideas of one person which originate in his brain or mind, whichever it may be called—the drawing giving the idea in a different manner and by a much shorter process than could be done by either language or writing.

There can be little doubt but that the discovery of photography has helped greatly in the truer representation of living objects in motion, particularly when wished to be represented foreshortened. One may attempt a profile without knowing much of anatomy; but, without a knowledge of this, an attempt to represent a foreshortened animal in motion is not likely to be effectual; but even anyone quite up in anatomy may be quite unable to represent on paper what he understands, though he would probably see at a glance whether a representation was anything like what it ought to be.

I have sometimes considered, if it could ever be possible to take instantaneous photographs of flocks of birds flying—if such could be taken—they would really be most interesting; as it often happens a flock of birds, from its shape and the position of the individuals in it, the species might be recognised from the photograph. Many species can be known, at a distance, by the form of the flock, and the manner of flight of the birds composing it; some kinds keeping at a distance from each other, whilst others fly close together; each kind often having some peculiarity in flight by which it is known. What teaches birds these peculiarities in their flight? No doubt they are often in consequence of the form of the wings; but the form of the wings would not regulate the distances at which the birds keep from each other when in the flock, or the shape of the flock.

NATURE'S WORKS GENERALLY.

There can be no denying that the study of natural history opens out a wide field for profitable employment for the mind. Take, for instance, the subject of the migration of birds. We look at a map, or a globe, and trace these as far as we can, at the same time receiving a lesson in geography, which perhaps does none of us any harm. This brings us face to face with the various shapes of land and water presented, and the marvellous distribution of each, which must attract the attention of any thoughtful person. Every portion of each peculiar form of each affords the appropriate home for quantities of Nature's living productions, some of which are local only, whilst others are merely occasional and more or less temporary visitors. These productions increase or decrease in quantity as Nature requires them; those disappearing from off the face of the globe entirely, not being further required by her, it may be apparently, primarily, through man, and he may be her recognised agent for their annihilation; or it may be through other and what might be considered more direct natural means; but man, I think, could not effectually annihilate a species, unless with Nature's approval, directly or indirectly.

The whole world seems to teem with, I was going to say, life, meaning animal life, but I may as well add vegetable also, as in some of the endless variety of forms of life it is scarcely possible to distinguish one from the other (we say vegetation lives and dies), some of the corallines being, in appearance, vegetable; but, though formed like it, are merely the shelter of animals, and formed by them, but we may well consider in what manner. How an atom can

attach itself to a rock, and continue extending its descendents or branches till solid land is formed, is wonderful, as are all Nature's ways when we consider them.

When Nature requires for her purposes, and for the exigencies to enable some of her productions to increase, and for the use and necessities of some others, how wonderfully she conducts her operations; she requires an island, or perhaps to increase in size land already formed, or perhaps she requires a shallow bay for them, and employs as her agent this little living creature, which attaches itself to the rock, and the kind immediately begins to increase. As time is of little consequence to Nature, she is in no hurry, but waits patiently till the atom becomes a reef, and then an island; or, if she will not wait, she employs other means—perhaps an earthquake—to effect the same object, which was to create more land; or it may be to make more sea, where she considers it necessary, and this she probably also does by an earthquake; and thus makes situations more suitable for such creatures as she wishes to become more numerous than they were. Every difference in the depth of the water and the currents and tides, and the quality of the land and what covers it, are suitable to her creatures' necessities, the largest of which we can easily observe and study. But, besides these, there is every degree in size till we come to the smallest, and what are these? They are more likely than not indistinguishable to man's unaided, or even aided, vision. We have to consider that those not visible, without aided vision, have to live, but on what smaller living things do they subsist? Probably on living things we have no conception of.

BIRDS.

The praiseworthy endeavour, at present being made, to trace the migrations of our own periodical visitors, we must admit to be a subject most difficult to follow, and, I feel sure, one without any end or probability of making much of, as most species of migratory birds are so extensively distributed, and the impossibility of finding out in which direction the individuals of a species travel, and the extent of country they fly over, and whether, when observed, they are really migrating.

There seems to be little doubt but that the time when different kinds of birds moult, has frequently a good deal to do with their periodical migratory flights. The young birds of many of the migratory species which take the most extensive flights in autumn, do not cast their flight feathers till the following autumn—an arrangement, probably, purposely to enable the species to be always able to take long flights at almost any season; the old birds, of such kinds, moulting their flight feathers, either when they are engaged with their young and have not to travel far, or very soon after the young have left them, and acquiring a perfect set of flight feathers previous to winter. The young of such as do not breed the year after being hatched, probably moult gradually during the following summer and autumn, so as to be able to fly well during the time they are moulting. Some species of non-migratory birds, as the crows, the young of which also seem to retain their first flight feathers till the following year; but the young starlings and larks cast their flight feathers in early autumn, undergoing a complete moult as the old birds do. But why the young birds of some non-migratory species have their flight feathers renewed in autumn, and others closely allied have not, I cannot explain. The young thrushes, like the crows, I

think, retain their flight feathers till the following year, merely acquiring, by a partial moult, a new and less spotted set of body feathers, which resemble those of the old birds, rendering it in autumn not easy to distinguish the old from the young birds of such migratory kinds as the fieldfare and redwing by the time they arrive on our shores, previous to the winter.

Of all the various branches of Nature's works, I like birds the best; and to like one branch in particular is almost enough for one person to attend to in a lifetime. Though the brilliant denizens of the South American Continent and the Malay Islands are most beautiful, and if one lived amongst them one would venerate them for their loveliness; yet one cannot have them to live amongst us in their natural state, and we have to be satisfied with their comparatively plain representatives here, but which are, on the whole, of more consequence to us, being, many of them, our familiar friends and companions—at least they would be if we would only let them alone and encourage them.

Even the savages, in all parts of the world, seem to admire the brilliancy of birds' feathers, and use them as ornaments; and, although they probably kill all the birds they can for personal adornment, or for barter, there is little likelihood of their numbers being diminished, as the jungles they generally inhabit are so impenetrable.

How interesting and amusing it is to watch the habits of some of our common birds. I have sometimes, in autumn, taken advantage of some cover and crept up to a flock of peewits, and got almost into the middle of the flock, and, resting against a hillock, I have observed them with the greatest pleasure. When you get close to them it is simply delightful to watch their graceful actions; some of the flock constantly raising their wings, in such a slow quiet manner, and flying

a short distance, and, settling again, running along the ground, and so leisurely closing their beautiful wings; and often uttering their interesting cry, sometimes almost as if to make their appearance more charming to the observer, and also as if talking to him. I know of no more elegant bird than this; the lovely distribution of colour at times, bright when the sun shines, and at other times when the bird is still, it can hardly be distinguished from the ground on which it stands. Should you raise your uncovered head a little, perhaps those near will be alarmed, and look about; but should you keep still, they will take courage again. If you raise your head a little higher, those near fly a little further off, and settle again. Should you rise gradually, they leisurely rise, those nearest going first, and followed by the others, till all are on the wing, when they get into a flock, often circling round you at a distance, and after flying round once or twice they take their departure, not seeming to like to trust your suspicious movements any longer.

INSECTS.

What a field we have for contemplation in every group of these! If we take the beetles, what varieties in shape, size, habits, and colour. What sort of power did it require to create these as they are, and how wonderfully adapted each is to exist for every purpose for which created!—some as scavengers to devour carrion, others in various ways to clear away the overgrowths of the forests; the most gigantic trees not escaping destruction from such a comparatively insignificant enemy. Some kinds beginning their work at the seeds even—the grub finding lodgings in the hard nut, the kernel being about sufficient for its nourishment so long as it required it in its then form.

If we take the butterflies, what wonderful shapes and colours, and what marvellous arrangement of the latter! some of them are gorgeously appalled in silky plumes; they appear to have been created to keep vegetation in check, but only as caterpillars, as some of the most beautiful of the perfect insects seem to derive what nourishment they require from animal substances, and those of a coarse description. For any knowledge of the habits of the conspicuous members of this group, we must transport our ideas of them in their natural condition to the tropics, yet irrespective of our not being able to see them alive, many of them are most lovely to look at as sent to this country, almost every colour being apparent, and of the most brilliant shades, and these mingled as no mortal mind could suggest, no combination existing that the most fastidious person could find fault with.

When we come to the moths and consider their importance—what could we do without their silk? Without it one half of our most exquisite fabrics could not be produced! Who living would like to be without these luxuries? Though the colours of the perfect insects cannot, as a rule, vie with those of the butterflies, the insects themselves are quite as interesting. They are also principally keepers in check of soft vegetation, as caterpillars; yet, in some cases, these attack the solid wood, and some of the caterpillars of the insignificant kinds feed on animal matter, as the common clothes moth, which no doubt has its use if we knew it; but many of us would rather be rid of it altogether, than put up with the annoyance it often is to us. The perfect insects, like the butterflies, apparently derive what nourishment they require by sucking juices or moisture only.

Probably in all cases great successes followed very trifling beginnings. I would like to

know what the person's idea was who first tried to unravel the textile thread from a silkworm's cocoon—did he or she ever contemplate the now universal use of the substance then engaged with? There used to be an old saying which was that “patience and perseverance turned mulberry leaves into satin.” Although the substance of the satin is natural, the fabric can hardly be considered a specimen of natural history. Though the mulberry leaves may be turned into satin, we have the impossibility pointed out to us also of “making a silken purse out of a sow's ear,” and how true is this saying.

Now in addition to the direct utility to man in giving him the silk, how great an indirect advantage might also be taken were we to pay more attention than has yet been paid to the combinations of colours and the variety of patterns (Nature's own), and of which can any be more correct than these which are so freely offered for us to copy? Consider the edgings of the wings of these insects, and see how advantageously the patterns of many of them might be made useful in embroidery—what a yet undeveloped field there is for such work. Nature's works are not nearly so much considered as they ought to be. We have divine orders to study them, and if we are so too much taken up with other matters to notice them, it shows there is something wrong, and besides this it is a fault as well as a misfortune generally, that we are not all encouraged to take more interest in them.

It has often struck me as extraordinary the different forms each kind of insect appears in, as the caterpillar, the cocoon, and the fully developed moth or butterfly:—First the caterpillar, as hatched from the egg, a voracious creature with large jaws, and during this state it appears to eat as much food as almost seems requisite to sustain it so long as it lives. Of course in

the cocoon state it eats nothing, some kinds remaining nearly a year in this transition state, but yet during that time undergoing a complete change, the inside at first being a sort of pulp almost resembling part of the inside of a bird's egg, but at the time for the full-grown insect to fly, this pulp seems to have formed wings, ready to enlarge immediately on its emergency, and all parts proper for the insect, including such digestive organs as are necessary for its entire change in the manner of feeding, which is now, through a delicate trunk only, to enable it to feed on dew or such like substance.

Sometimes the caterpillars of some species almost become a nuisance, and threaten the total destruction of some kinds of trees and plants—but those which appear in some seasons in such profusion come only, and unaccountably so, very occasionally, and although they perhaps nearly strip the trees of their leaves, Nature has so arranged it that all the caterpillars of each of the separate kinds should be hatched at similar seasons of the year and at these only, so that, though the trees may be stripped of their leaves, most of the kinds could put out a second growth so as to prevent the trees being killed outright.

I have known the caterpillars of the buff tip moth, in an occasional year, strip oak trees of their leaves, and the moth be common for the year, and in after years hardly any are seen in the neighbourhood. So it is with the swarms of locusts in foreign countries which occasionally occur, but without any reason we can find out their appearance in a following year may be in trifling numbers only.

As a rule dry seasons suit insect life best. In these sometimes the common white butterflies become very numerous, and the caterpillars are very destructive, as they seem to be produced

in successive broods all through summer; but I think this is the case in very few species. One might ask why the common white butterfly is so productive, and the orange tip and most other kinds only appear to have a single brood during the year?

In rainy seasons it is quite evident, I think, the caterpillars cannot feed and grow; and in such kinds as have only one lot of eggs in the season, if wet at that time the crop of insects for the next season is much diminished, you may say hopelessly; but should there be repeated broods, as in the common white butterfly, a wet early summer might nearly destroy the first brood; but if a dry late one, the crop might be excessive, from the few perfect insects which escaped during the early wet season, as all the eggs laid by them might produce perfect insects.

I should think in tropical countries, where they have wet seasons periodically, at such times most of the insects will be either in the egg or chrysalis state, and that the perfect insect's life will be of very short duration, not extending over the dry season; the rain, when it does come, often being so excessive in quantity, and lasting for such a length of time, that the caterpillars or perfect insects would be washed away, but it may not be so, as perhaps the foliage on the trees may be so luxuriant as to afford shelter in some nooks and corners for them.

Perhaps some writers, without giving sufficient consideration to the subject, often suggest as a certainty that if birds were more strictly protected, we would be relieved from any anxiety as to depredations committed by insects, from their becoming what we consider, at particular and uncertain times, too numerous.

Now I cannot help thinking such letters and opinions only mislead, and though they perhaps tend to prevent cruelty to our feathered friends, they rather also lead their readers to expect

impossibilities, such as a supposition that the crops even in adverse seasons would come to perfection, if the birds were protected, without care and thought on man's part to overcome the disadvantageous natural causes of their failure.

Any attempt by man to exterminate a noxious insect so generally distributed as what is called the turnip fly must be futile. What he must do is to endeavour to strengthen the young plants artificially in dry seasons, and make them grow quickly enough to enable them to outgrow the damage occasioned by the insects, as they naturally do in favourable seasons. He has to use his energy and ingenuity to imitate the propitious season by artificial means, and probably in time he will be successful. There can be no doubt the healthier the plant is the less chance there is of failure from attacks by insects, and, therefore, what is required is to have the plants in the most healthy state, by some means or other, even in adverse seasons, and this can only be done by having the ground in the most productive state which man by his care and forethought must accomplish, and which difficulty without doubt he will ultimately overcome by patience and perseverance, and after trying many experiments. It is truly wonderful what strides science is enabling us to take nowadays, even in such matters as this; but the difficulty will not be overcome without more care and thought than is apparently bestowed on such matters by the rising generation generally.

The old saying that "when the wind is in the east it is neither good for man nor beast," we may add that it is often not good for vegetation either, certainly not in spring, as it is then often accompanied by a parching sun, which, however, probably takes the winter cold out of the ground, but it also delays the vegetation, of small seeds particularly,

and this weather we generally have, at that season, instead of moist, showery weather, with the south-west wind requisite to push on vegetation. If we could reckon on having the dry sunny weather with the east wind in autumn, one imagines it would ripen and dry the seed and enable the farmer to harvest it in good condition. However, as we cannot alter the seasons, the only course to pursue is to try, by artificial means, to keep the soil in which the seed is sown damp. Could this be done by sowing some composition such as salt, or some other similar artificial chemical production, with the turnip seed, which might produce sufficient moisture to encourage the young plant to grow, and at the same time make the soil itself disagreeable to the insects? It seems likely experiments of this sort might succeed: they are certainly worth not only a trial, but many trials, by all of those interested in such matters.

A few years ago perhaps we were all worked rather too hard, but at the present time is there really any hard work—at any rate is the hard work not too unevenly divided from the all-play? Nowadays hours of work are shortened, and we have heaps of holidays. These, probably, were thought requisite by the sticklers for them to enable people to think more; but instead of their doing so for their real good, no holiday comes without its cotemporary attractions of, I was going to say, frivolous amusements; and instead of spending the day as one of rest from ordinary work, it really is more a day of toil to many than the day of ordinary work would be; and how many, after the day is over, would not much rather have had a really quiet holiday without the excitement caused by the crowds and the hurry attending the holiday. Amusements are all very well in their way, but like all other matters they can only be beneficial when enjoyed in moderation.

I really think birds, to a very limited extent, keep insects in check; there is always a great excess of them over and above what the birds require and what they can possibly destroy. Really, are the mosquitos ever less numerous in Nature's swamps in summer, notwithstanding the numbers eaten by the birds then congregated at them when at their nests? Or one might ask are the fishes or shell-fish in the sea ever diminished in quantity, in consequence of the millions eaten daily by birds and by each other, over and above the apparently significant yet really very insignificant toll taken by man to supply his wants?

We apparently wish to have our own ways and ideas in deciding as to what should be satisfactory arrangements for Nature to make, but we may depend upon it she cares little for our perhaps too officious interference, which, more often than not, is beneath her notice.

Now what leads me to make these remarks is that it would appear, in some countries where the birds are not interfered with, vegetation at times suffers at irregular periods from excessive quantities of locusts and other insects, showing us plainly that it often happens that the birds can have little or no control over these excessive productions, which seem to occur in occasional years only, and unaccountably.

One might expect, in consequence of a plague of insects one season, there would be a far greater plague the following one, in consequence of what we might expect from the numbers breeding and multiplying, and that a greater famine would occur the following year in consequence; generally, however, no such calamity occurs; all is arranged by Nature and managed to her entire satisfaction, notwithstanding the hordes which escaped such wholesale destructions as we sometimes read of, as by millions of them falling into the sea and being drowned and left on

the shores to decay. Nature uses various methods to produce her countless millions of her creatures, as well as to get rid of them, if she wishes to do so.

It must very frequently happen that our feathered friends actually, as often as not, feed on the very insects which live on those that are most injurious to our crops. This fact does not seem to be taken into consideration when we take upon ourselves to fancy we know better than Nature what is best for us.

Some birds certainly eat ichneumons, which, as must be well known, lay their eggs in the caterpillars of moths and butterflies, and instead of the chrysalis turning to a butterfly it merely forms the habitation for its destroyers. No doubt can be entertained but that many species are naturally partly kept in check in this manner; but when an unfavourable season, as a wet one occurs, it tells both ways probably, or the destroyer might be too strong for his enemy and reduce the kind to too low a degree. Nature provides against any such casualty.

If we have leisure to notice them, how curiously and by what small means Nature sometimes keeps in order her creatures; a small insect even prunes her trees; for instance even amongst our varieties of roses in our gardens she helps us, perhaps not as we wish exactly, yet she does not allow them to get too luxuriant in her estimation, no sooner is a very strong sucker thrown out than a grub, probably hatched from an egg laid by the parent insect in the exact position required, is hatched, and makes its home the inside of the sucker, descending the shoot and feeding on the centre, leaving the wall for its defence; well it lives in this manner till of full size, it then turns to a chrysalis, having stopped the vigorous growth of the rose and compelled it to send out side shoots, and thus perhaps throws the plant earlier into a

state to flower and bear seeds. During the time it is feeding in its strange home no birds seem to attack it, but probably in its perfect state it is often destroyed by them.

I can fancy some amateur rose-grower reading this and observing to himself, "The little rascal, I know it well; but I only wish it would not interfere with my operations but would allow me to prune my roses as I like; I fancy I know much better than it does how to do it." No doubt he is quite right as far as this, that he knows the shape of bush he wishes to have; and he also knows by observation and using his intellect how to obtain what he expressly desires to be at. Nature's method being a general one only and often what we consider the rough and ready one—but notwithstanding this, it effects her purpose.

VEGETATION GENERALLY.

Now a few words on trees, plants, flowers, and fruits. Can anything exceed the variety we find here in form and colour? Some of the flowers being of the most extreme beauty and grandeur in both these respects.

Vegetation may be separated into two divisions—each Nature's own; the first, comprising those kinds which probably remain as created, and which have not and cannot be changed by cultivation and man's attention; the second, comprising all those which have been altered by man in various degrees, so far as the several kinds are capable of being interfered with; but why one of such kinds can be altered in shape and colour by horticulture in a greater degree than another, is a mystery. Many of our most gorgeous flowers and plants are very unlike the original state in which man found them; so much so that in some plants

particularly, it seems almost impossible in certain cases to know which are original species and which are only sports from them, obtained perhaps thousands of years ago.

It seems the same with the second group of these, as with many of our domesticated animals, which have been used by man for such a number of years, we can never know what they descended from, some of them being unknown in a truly wild or original state at the present time. It seems wonderful that it should ever have been in man's power to improve (I must call it) wild fruits into their present state—such as pears, peaches, grapes, and other kinds which appear so much altered that it is difficult to trace their originality. Perhaps there is hardly any limit to the improvements which may be yet made in some of these kinds; but when we come to wheat, for instance, there appears a limit to what can be done with it; the seed seems to have been as nearly as possible the same size for thousands of years; but from what was it originally produced?

If and when we think of such matters, how grateful we ought to be to the Creator for having originally created such substances, animal as well as vegetable, which were suitable for man's subsistence as food, more particularly for having directed his attention, at various times and in various ways, to the manner by which with his care and attention many of them could be improved, not for his sustenance only, but in order to add to his enjoyment of life. I will only allude to our native strawberry, now, by man's care and attention in its improved condition, one of the most useful and delicious fruits, which is almost universally liked by every one, from the prince to the peasant, and within the reach of all, from its abundance and the small amount of care required for its cultivation.

If it was a fruit requiring great care, and rare, how much would be thought of it? Has the highest state to which it is capable of being improved yet been achieved?

How admirably the Chinese in old times made use of trees and flowers as patterns in decorating their magnificent porcelain, both in the trailing forms of some of the plants, as well as in the use of the colours of the flowers; and what care they seem to have taken in horticulture itself. I have sometimes considered whether they have not aimed at copying the delicate shades in their beautiful dyed silks, and blended these shades in imitation of the colours they have so successfully arrived at attaining in their lovely moutan peonies; some of which are evidently varieties of one of Nature's species produced by them hundreds of years ago. At any rate they had first-rate taste for delicacy of colouring; but by what dyes and by what process they did produce either the colours used, or the change in that of the plants, I know nothing; to say the least, they show the most exquisite appreciation of colour, and also of blending congenial colours; in every way they attempt to do this there is decided harmony. Am I digressing too much if I wish to pay a humble tribute to their ancestors' great talent in their appreciation of the use of colour in many of their older pieces of porcelain, many of which put the later productions quite in the shade. In some of these they seem to be copying "Crown Derby" pottery in the mixture and density of the red and blue and other bright colours, as well as in the heaviness of the gilding. This, in some way, would lead one to suppose their original good taste was degenerating, in this respect at any rate; and if it is it is much to be regretted. The pace we are going at, in the present time, seems to be assimilating nations' ideas to a great extent, and perhaps is turning us all into copyists of each other's works for the sake of fashion and the love of money. In former times it would

appear that the Chinese carried on their ceramic trade almost entirely as an art, and not as a means merely to make money; it would seem that the manufacturers vied with each other in the production of the various shapes of their works, as well as the colours they required, the ingredients used, as well as the mixing them, probably being a secret.

We may suppose each new design originated at one of the manufactories, and after a sufficient quantity of a pattern (probably one set) was completed, no more were made, and the mould would be destroyed on purpose to preserve its rarity. Even in a set of ware, one designer, or more, would partly colour one piece, and then each would do the same work on another, to make them match to a certain extent, instead, however, of one being a copy of the other, there is generally some difference which makes each piece an original work of art. How different things seem to be done in the present day; probably if a ton of any recent work was required, it could and would be produced; but, so far as original taste is concerned, what must we think?

There is the greatest difference in what should be considered articles for use, and those for ornament; for instance, if you have one only, or a pair of objects of very beautifully executed design, in texture as well as quality, even if on a plate or plates, these should be used as ornaments; but if you have a set, this should be used, certainly as decoration at a festive board only, but not as ornaments collectively. The very repetition of a similar pattern, though on an article of different shape, spoils the effect, and points out to an educated eye that if made as a dinner or tea set, it should be used as such and such only, however valuable each article may be, and however fine the production of each one may be; one specimen shows, or two at most

show the designer's taste and work, however good it may be; having many examples of the same, merely suggests one good picture, and so many copies which the ordinary observer cannot distinguish from the original.

I fear I have lost myself in China, and therefore must hark back to my subject without getting into further digressions.

It might be asked, what is taste? Every one has a right to have his idea of this; but how few seem to possess any of their own. The old saying is that "one fool makes many." Now some one desiring to originate a new idea, might place even dandelions in a conservatory or a drawing-room; merely to see if he could constitute a fashion; and I have no doubt if he did (which he had a perfect right to do if he liked), many others would follow his example, but would not be content with copying his questionable good taste, but would go so much further as even to exaggerate it, and turn the whole effect into ridicule.

Such flowers as the lilies of the valley, from their simplicity of form, their sympathetic leaf, and delicious smell, cannot help attracting the attention of every one, and no one could find fault with any quantity of these anywhere; but because some one, whose good taste probably was genuine and original, chose to place a flower like a dog-daisy, which really has a very coarse smell and is excessively formal, in his house, from some whim, and has possibly arranged it with some other wild flowers in an unexceptionally good taste so as to look well; why, I say, every one is therefore to have a bunch of these formal flowers put everywhere, is more than I can find out. Even when the plant is in a corn-field, amongst poppies, though it looks well enough this cannot be its proper place, as it almost always suggests either a rubbish heap or

bad farming, though one or two might pass in a very little girl's hat in the country, if tastefully placed there. The old proverb tells us "there is only one step between the sublime and the ridiculous." My own idea is that you might as well have a bunch of such formal flowers as marigolds or sweet-williams, and put them in a drawing-room in the place of more lovely flowers; though, if you have an ordinary garden, there could be no excuse for your thus using them; perhaps the only one might be that they were better than none; but I doubt this altogether; dog-daisies, and such like coarse flowers, if dealt with for decoration, require more taste in their arrangement than most of us possess, however perfect we may consider our discrimination in such matters.

All things are well enough in their proper places, and all people and what they do would be very well if we were not now so entirely copyists. Why should the rush be towards extravagant ideas of all kinds and everywhere? Why can we not be content without trying to outdo some one else? The contagion seems to be spreading at an electrical speed. Where is it to end?

The jackdaw seems to be a very-well-satisfied-with-himself sort of bird, and as such is an uncommonly nice fellow in his way; but, as the fable points out, when showing his vanity he tries to make a peacock of himself, he renders himself ridiculous; he being perhaps the wiser bird of the two, but, instead of being content to be as he is, he apes his superior outwardly, his inferior in perhaps sense—vanity, however, apart. I wonder if there are really any human jackdaws in existence?

MINERALS AND SHELLS.

Every branch of natural history has its peculiar fascinations. The only one not pleasing to me is mineralogy, perhaps the most wonderful of all, if one can be more so than another. In it there is a rich store of occupation for the mind; but the want of form, and also of colour, with few exceptions, render it little attractive to me. Even the precious stones are, in their natural state, without definite form, and their hidden beauty is only brought into view by the skill of the lapidary, so that in reality these are hardly natural productions when valued as either curiosities or ornaments. But when their substance came into existence, and how? Who can tell?

How wonderfully the solid portions of the world have been formed; all kinds of substances seem to have been required to make it perfect. The antediluvian gigantic lizards, and even their dung, seem to have been called into requisition for the purpose of making solid land of such peculiar character as Nature wanted for some of her purposes; their fossil remains prove this. The lime also, collected during their growth by the inhabitants of shells and corallines, seems equally to have been utilized, and has been petrified so as to form rocks of some peculiar kind Nature required. We find this proved by the forms of the shells in the hard rocks which retain them, but their substance altered in consistence. Trees also, and all other vegetable matter, in fact all things within reach at the time these rocks were formed, seem to have been required and utilized to form these now solid portions of the world.

Wondering only, and not even considering scientifically about rocks, what are we to think of the deposits of coal alone, and the thickness of the seams? If we try to conceive the

amount of vegetable substance required to make a seam, say even a foot thick over an extent of country, we are confounded. What must we say to a seam six feet thick? Can we doubt but that the Creator placed it where it is entirely for man's use? If we consider the depth it is found at, and how it got there, we are bewildered altogether. Then as to metals, what are they made of? and at what distance of time were they formed, and under what circumstances?

Really it seems to come to this, that it is hardly possible to say there is a very great distinction between the liquid and the solid portions of the globe, as the liquid portion seems to contain so much matter capable of being made solid, as lime and salt, and even perhaps some metallic substances. The whole subject, on consideration, seems to be little understood, except perhaps by a few scientific persons who keep their knowledge very much to themselves. There must be lime in the sea, or whence come the shells, and the bones of its other inhabitants? and there may be metallic matter which may produce the colours of the inhabitants. Then again, how lime must in some shape or other be distributed generally. Where is it gathered to form our bones? Is man himself partly a mineral, as also a metal, besides the other component parts of his body? I think I have heard his blood is coloured from iron. One can fancy his acquiring lime from the vegetables he eats, the same having been absorbed by them from the earth. The carnivorous animals perhaps get the lime they require indirectly from feeding on other animals whose diet was vegetable.

Perhaps some of us may suppose pearls may have some analogy to precious stones in consequence of their being used like them as personal ornaments, and which are, if large and of good quality, very highly esteemed; but they are of a very different quality. They are being

formed at the present time, and in their natural condition they are of comparatively short existence, yet when once in man's possession they will keep any length of time if taken care of. Well, what is a pearl? It certainly is a wonderful example amongst Nature's works. In itself it is one of the most chaste and delicate objects and of great value, which it has been for upwards of two thousand years, and which value, from its chaste and modest beauty, it continues to retain. It is however merely an excrescence similar in substance to that of the component parts of the shell of the insignificant animal in which it is found, and no doubt the creature would have much preferred to have the substance it is made of used in the ordinary way, which should have been merely to enlarge its shell. It is simply what might be called a disease in such an insignificant animal, probably placed where it is to be found by man and used by him for his luxurious enjoyment, as it can hardly be considered as otherwise useful either to him or to the animal in which it is formed. Pearls certainly are the simplest and most chaste ornaments for any gentlewoman, the only objection to them as such is the facility with which the counterfeit is made; but at the same time the wearer of genuine pearls has the inner satisfaction of knowing that her ornaments are not sham, which, if the wearer of the latter, if she has any right feeling at all, should instead of being proud in having them, would be the reverse. Perhaps if the insignificant animal in whose body the pearl was found, and which probably gave it some trouble, knew that it might help to adorn a queen, it might gratify it and be some recompense for the inconvenience it gave it. As a matter of course, so soon as the animal dies the shell opens and the pearl, if there is one, is lost when the body decays, and the pearl as well as the shell alter their condition by decomposition, and probably in

time become lime, and mix again in the sea in very small particles, and which will be again utilized by some other animal; but it is scarcely likely again to help to make another pearl, which is simply an extraordinary excrescence entirely caused by some infirmity in the constitution of the animal in which it grows.

Large pearls, like diamonds and other precious stones, are often valued for their size almost entirely, from the rarity of their being so found; here we have an instance of a questionable style of taste.

It often happens, when of great size, they lack the quality of perfect uniformity in shape, certainly I think, the greatest charm in the simple form of the pearl so often seen. A large pearl, except for its lustre, is often rather suggestive of a malformation. Could it be possible to cut mother-of-pearl into beads, drill these and polish them? If so used, would the beads not equal or even surpass the real pearl in beauty, if such a matter could be possible?

Though shells are generally considered of a very different group from minerals; on thinking about the subject we must come to the conclusion that the shell itself is a mineral production which Nature gave the power to the living creature to make merely for its protection; the pearl also being like the shell a mineral production naturally made, and in such a very singular manner.

We sometimes see substances of very different compositions somewhat similar in appearance; for instance, mother-of-pearl, made by what for illustration I will call an oyster, and which sometimes for iridescence might be compared to what may be considered when fine, the most beautiful of precious stones, the opal. I have sometimes almost wondered some jeweller

has not mounted some fine examples of the former, if merely as an experiment—perhaps it would be considered too common; but what can be too common which is of so great and such simple beauty?

It appears to me that some portions of the delicate pink parts of the shell of the large strombus might be used also in a similar manner—the colour much resembling pink coral—perhaps it may be. So far as I know, no one has yet been able to make any artificial substance which will produce the play of colour of the opal, or even of mother-of-pearl, in consequence there could be no doubt of ornaments made of either substance being genuine. This much cannot be said of diamonds, emeralds, and some other valuable stones, which are copied so exactly as often to have to be tested by artificial means to prove their reality. Even pearls are so easily and so well copied it is sometimes difficult to know the difference between the real one and the substitute, excepting that the real pearls often seem to be of rather irregular shape. Notwithstanding the fascinating loveliness of a fine opal—why was the substance of which it was composed, like some form of metals, apparently in a fused state merely used to fill up the crevices in the rocks? Perhaps purposely for its hidden beauty to be discovered by man, and to be held in estimation by him when found, to encourage him in his searches after Nature's treasures.

I can imagine a lovely necklace, made of choice pieces of flat mother-of-pearl, and fit to adorn the neck of the fairest of gentlewomen, if cunningly and artistically devised by a skilful hand: the very shape of the shell seems as if made for the purpose, and, the material not being very costly, it might be cut to waste, which is not the case with more expensive substances.

I think some choice pieces I have seen far surpass the pearl itself in beauty, the combination of the lustre of the pale green and pink shades being perfect. The material itself seems to me admirably adapted for such a purpose, particularly if set with artistic skill in a very light and delicate setting. Here again the savages seem to have observed its beauty and made use of it; but they seem to have used often that taken from the haliotis shell, perhaps better known as Venus's ear, but which generally I think is too strong in colouring and lacks the delicacy in shading so conspicuous in that which can be procured from some other shells. The lovely play of colour in the opal and mother-of-pearl sometimes reminds me of the partly clouded morning or evening sky, which is never by any accident seen twice exactly alike, the variety of shades of colour being infinite.

When gold was, comparatively speaking, a rare commodity, one does not wonder that it was used heavily for personal adornment, but at the present time one would think those who have good taste would use it sparingly, and only when by good artistic skill it was worked into devices not easily copied. The great charm I think should be to have such things as are unique of their kind, and not merely massive gold ornaments made by the thousand it may be, and these often apparently used to show the weight of what is called precious metal in the possession of the wearer. How curious it is when we consider what fashion is, and the relative value of things; probably a South Sea Island woman would feel prouder with the possession of a necklace of various coloured glass beads than any English noblewoman would, who owned the finest pearl necklace in the kingdom; or perhaps a Greenlander if he had his choice of a bar of gold, or one of copper, or iron, he would choose the latter.

One observation leads to another. From the pearl we may get to the operculum. Some readers may ask, what is this? It seems to be a protection to the inhabitants of some univalve shells, why to some kinds only I cannot explain, neither can I explain, whilst in some it is merely of a horny or matted hairy description, in others it is of the same apparent composition of the shell as is the pearl; but instead of being like it, an extraordinary production caused by disease, it is part of the ordinary necessity for the animal inhabiting the peculiar kind of shell, so that probably when it is attacked by some deadly enemy, it withdraws itself into its shell, and closes its impenetrable barrier behind it and is safe. But how and why one species has the horny operculum, like our common silver shell, and some of the foreign species have the formidable shelly protection, I know not. The larger land snails have no operculum, but when they hybernate, a hard substance shuts them in for a season, no doubt as a protection from some enemy during the long time they are at rest, and during it only as it is a fixture and immovable, and entirely unlike the ordinary operculum which is constantly attached to the living animal. The horny operculum seems to be of a similar composition to the epidermis on the outsides of many kinds of shells, which hides much of their colour; how it grows is a mystery on the hard shell, and really it has the appearance often of a kind of vegetable growth; why some shells have it, and others, apparently somewhat similar, are without it, who can tell?

It may be sometimes as a protection from some enemy, as it probably assimilates the shell to the ground; but with what kind of eyes do the inhabitants of the deep look upon their food, or by what method are they guided to it, is a subject for contemplation. Do they distinguish colour or shape, or do they often find it by the smell? Perhaps each is possessed of some sense we know nothing of.

The older one grows one would expect the more one would know, this perhaps one does, and at the last only find out how little it is. We are yet, and will be probably for ever, in our infancy as to the accurate knowledge of what constitutes a species—not of birds only, but of all things animal and vegetable in Nature's work. This is of course a wide question, but some persons write about some hybrids between two nearly allied (I add supposed) species, as if they knew them to be produced from different species, but I would ask them how they do know, and where they acquired their information? There can be no doubt but every naturally created substance, animate and inanimate, was and is perfect of its kind, and entirely suited for the condition Nature intended it to exist in, and remains perfect so long as Nature requires it in its existing form; but, so soon as it fulfils its mission, Nature will dispense with it by some means.

All of these substances alluded to have been arranged for convenience by man in groups, or what might be called genera, in the living creation, as quadrupeds, birds, fishes, reptiles, shells, and insects, then the plants and trees, and the inanimate structures, as minerals, metals, and so forth. Then each group has again and again been subdivided into subgenera for the purpose of pointing out the different divisions of each group, as amongst the birds, eagles, ducks, and others—the insects, beetles, butterflies, and so on with all the other groups of Nature's productions; but it seems when we consider all matters concerning all and each of them, and go into the question of the word species, so commonly used, we are at a complete loss as to what it means—not only the several so-called species often being indivisible from both outward and inward appearances, but in some cases even the subgenera have no very decided distinctions, some of them more or less approximating to others in some respect, but being far away in various ways.

It would really appear to be possible that varieties of many different created substances, animal as well as vegetable, obtained through man's exertions, may have been and we may say are being adopted by Nature, and perhaps have become and are becoming permanent in such condition in localities far away from where the varieties originated, and, after having been localized at particular places for some time, have from local or other causes altered so greatly in form and colour as not to be traceable to what they originally sprung from, and Nature may sometimes use such means to produce what she requires to occupy a country perhaps entirely changed in character from its original state by man's work. If this is so, and has been going on for a great length of time, it might account in some cases for the great difficulty there is in deciding really what does constitute a species, and which must point out that on the subject we will probably never know more than we now do.

It is a very curious fact that in some species of almost every group of Nature's works we find one what we call species (apparently as created) constant in its appearance, irrespective of sex even, in size, shape, and colour, and another closely allied just the reverse in each particular. Why is this, and how to be accounted for? I make this remark, totally setting aside such as have been interfered with to our certain knowledge by man; some of the instances being such insignificant subjects as insects found in jungles still in their original condition, which it would certainly appear could not have been under any influence from man.

Nature seems often to have very marked permanent varieties of her productions to occupy different localities, the varieties most marked being those occupying the most opposite sorts of positions but merging into each other where the different positions meet. We find this in some

shells, the deeper the water they inhabit the more fragile they are, and the shallower the water the thicker the shell is, no doubt the chances being that in the shallow water, from the roughness of the sea at times, they would be more likely to be broken. This is easily seen in the common buccinum of our own coast, which seems to be found at different depths in the sea, and of great variety in the thickness of shell as well as shape. Another instance of the variation, but in size only, we find in the full grown shells of the larger *Fusus*, but here we have not the variation in the thickness of the shell, but merely the size, probably it never comes into water influenced by the action of the waves—but why should the mature shells and animals not be always about the same size?

We see this prominently with the common mussel, which in some sheltered situations grows to a large size, whilst on exposed rocks over which the waves break, they get clustered in every water-washed hole and corner of the rock, many together, and of very small size, evidently to resist the power of the water and prevent their being washed away, and in which places they appear to live a long time, but do not apparently increase in size. Some of the other kinds of shells, when full grown, vary much in size; in some of the cowries this is easily seen, as, when the lip once curls over, the shell, as well as the animal, has attained its full growth, whilst in other closely allied kinds, when the lip turns over, all appear nearly about the same size! How is this? In some kinds of fishes also, maturity seems to have nothing to do with the size of individuals—for instance, mackerel and herrings do not vary very much when mature; but how different it is in the salmon, and halibut and other kinds, which, apparently under certain unexplained circumstances, increase in size as long as they live.

I fear my observations, which were only intended to occupy a few pages, are going to be as long as the web spun by the silkworm, and that the reader has become quite tired of them; probably he will never reach so far as this, but my apology for their great length is that when once one begins to write there is no stopping, so many odd propositions suggest themselves on subjects which are so interesting—We may well ask how can all these things be?

I intended to have had a word or two about some quadrupeds, fishes, and other creeping things besides those already mentioned, inhabiting both the land and sea, but I must defer doing so at present, and will now conclude this long tirade, merely remarking that it was the Creator's good pleasure to people the world and clothe it with good things, all of which were directly or indirectly for man's enjoyment, and without many of them how could he exist? In his present, (what must be called artificial) condition those, which he may consider of no use or value to him, were created for Nature's own purposes, but also for his harmless amusement, by affording him the opportunity to study their habits and to acquire some knowledge of her works.

Verily, many of the present generation and most of the rising one are proud in and satisfied with their own conceit. What can all this end in? These are luxurious times, but yet in spite of this it appears to be a fashion to be anxious about the religious welfare of others, and especially the poor, but generally as a rule each one seems to be entirely at his or her ease and content as to their own.



SOME MORE WANDERING IDEAS PERPETUATED.

The migration of birds has always been a subject most interesting to me. I would remark the improbability of Nature not having defined limits to the migrations entirely within the powers of endurance of the several kinds she created, so as to enable them to inhabit distant countries at the various seasons as appointed by her. When instinct pointed out to the several kinds these limits, and the birds' flight was to extend over great distances of water, it seems impossible to believe the several kinds were created without such instinct and also power of flight as would enable them to accomplish the journey in safety. When flying over land on which the birds can rest, no difficulty arises, and any distance can be traversed, but in such cases, however, there is no possibility of ascertaining the distance travelled over without their resting. When the migration is that of land birds and over water, it seems possible to observe the distance birds do fly without resting, and to ascertain their powers of endurance under such circumstances. One can easily imagine an albatross extending its flight any distance over water, but land birds which can get no rest, even in calm weather, are in a different position altogether. An albatross perhaps could get rest on the huge waves in mid-ocean even in stormy weather, and it might find shelter, to some extent, by flying along and keeping in the hollow of the waves merely passing from one to the other, but as it was created to wander so far from land, it no doubt has instinct as well as power given to it to enable it to reach such shelter as it requires whenever circumstances render it desirable for it to do so.

To endeavour to find out the distance land birds can fly over water I will take the island of Bermuda for example, which, speaking roughly, exceeds seven hundred miles from the nearest land, but should birds be migrating from the direct north (due south) the distance from land on either side would perhaps be one thousand miles. Now, should birds migrating miss the island, could they live to travel two thousand miles? One can hardly fancy all those migrating could depend on finding such a speck as this island in such a space of sea. I will not pass an opinion as to the distances birds can fly, but there must be some limit, perhaps that mentioned, for instance, may be about it.

Any one who has seen a flock of teal flying with the wind during a gale might have some idea of the speed they are going at, which certainly appears surprising; and when a flock of wild geese comes over your head, with a high wind, they seem to be travelling at a terrific pace.

We can have no idea of the senses of any living creatures excepting ourselves, that is as to sight, hearing, or smell; neither have the birds barometers nor telegraphs as to winds and weather, but, notwithstanding this, instinct probably dictates the time exactly suitable for them to undertake the hazardous journey, and probably though a few sometimes come to grief, the bulk, or certainly so many as nature requires, will arrive safely at the end of it; neither can we have the slightest idea whether other creatures except ourselves can discern colours as we see them.

No doubt some kinds of creatures hear very acutely, but it is doubtful if birds living amongst rocks, and where the sea is constantly breaking even on the sea itself in windy weather the sense of hearing is of much consequence to them. Is it ascertained whether fishes can hear?

Now, we find the ears of many kinds of water birds are very small and well covered with feathers, probably to prevent the water getting into them, but to make up for this, their sight is very keen, and like most other kinds of birds their eyes are placed at each side of the head, giving them a very wide range of vision without the necessity of turning their heads. Land birds generally have larger ears which are covered by longer feathers, but which are thin probably to allow sound to easily penetrate the ear. Now, when we come to owls we see a great difference: an owl has a face, and its large eyes look forward, and in consequence, without turning its head, it cannot see behind it; probably to make up for this it has enormous ears to give it warning what is occurring behind it. Should any one not have seen an owl's ears, I would recommend him on the first opportunity to look at them merely for curiosity, but by no means to kill one for such purpose only, unless he takes sufficient interest so as to be anxious to learn something from the examination. The ear is twenty times as large as that of other birds. Why should the horned owls have such splendid orange coloured eyes whilst the unhorned owls often have dark eyes? One might fancy the former had such eyes to strike their prey with terror, that is if the prey sees them as we do, at the same time they generally feed at night, and one may well ask how each sees in the dark. Has any one yet found out the difference in the eyes of such birds as see by day and such as see by night? There must be some difference.

When considering the position of the eyes in different creatures, I may perhaps call attention to this in man; here we find his eyes not only in such a position as to make his appearance more uniform than what could be possible were they in any other position, but also

we find them most usefully placed as at once seems apparent, it being desirable he should have a greater range of view horizontally than perpendicularly. It always seems curious we should see objects with one eye, or both eyes, and yet be unable to distinguish what we see with either eye only or with both—we know, however, this is the case, as if you shut one eye, you find the space you take in by the other eye less than when you have both eyes open.

Now in birds it probably is of the greatest importance to them that they should see in every direction, upwards as a protection from winged enemies, downwards to seek their food, and all around for protection from enemies on the ground—perhaps they seldom, if ever, see one object with both eyes at the same time, in consequence of the position of their eyes, which certainly are so placed as to give them the power to see in almost every direction without turning their heads. You frequently see a bird on the ground turn its head sideways to look at a bird high in the air, I have often had my attention called to a large bird so high in the air as to be only a speck, by observing the bird on the ground so looking up. Owls however which take their prey in the dark, probably have their large eyes so placed to enable them to see their prey on the ground when flying over, and probably they have no enemies which attack them by night, and it is unnecessary for them to guard against attacks from above; their whole attention being required in looking for their prey, which, their eyes placed as they are, enable them to see.

Having noticed the position of birds' eyes, we will now make a few observations on those of some fishes: as salmon, trout, and smelts, perhaps as beautiful in form as any other kinds (always excepting an old male salmon in autumn, which is often as ugly as anything can possibly

be) have their eyes at the sides of the head, and probably they never see the same object with both eyes at the same time. Now these fishes cannot I think possibly see immediately behind them, nor perhaps directly above them, nor even in front of them, and we must presume Nature did not think it necessary for them to be able to do so. As a rule, in fresh water, when feeding, they lie with the head pointed up the stream, and on the look out for their food being carried down by the current, their resting place often being directly below where a stream is partly divided and where it meets again, the current bringing their prey in sight of either one eye or the other. Now we come to their enemy, and observe its eyes, like black beads, placed on its flat shining hairy head, and enabling it to look above it, and consider how well adapted they are placed to enable it to get behind and beneath its prey, and seize it before being observed. Have you detected the otter in its shining hairy hide, impervious to water as well as cold, and which by its natural cunning can secure such a powerful and swift swimming fish as a salmon? Again, if you consider a seal perhaps as a swimmer not surpassed by any other of Nature's productions; but even it seems to fall a prey to the huge and almost ungainly looking Polar bear. The seal, however, would I think hardly be able to see what is coming behind him, as his neck will not bend, and his eyes, like those of the otter, seem formed for looking upwards and forwards. When you see a seal, and he sees you, he always comes up with his face towards you.

As I think I have before remarked, all Nature's creatures are enabled instinctively to find their food, and those feeding on other living things, with either sufficient cunning, or other means, so as to enable them to overtake and catch their prey; but yet none of these creatures

are able to prevent themselves being caught and eaten by the creatures whose food Nature intended them to form. Nature often seems to have ordained that her fleetest creatures, in other respects, easily fall a prey to their destroyers, as she has just purposely omitted in them the very condition that would have prevented their destroyer being able to seize them—as an instance, the terns and the gannets which drop from a height on fishes, which can move almost like lightning, and would readily get out of the way had not Nature placed their eyes in such a position that they could not see exactly above them, and the consequence is they are not aware of their danger till they are caught.

What a singular instance of a similar arrangement in Nature's freaks is the apparent fact that a whale and a duck should apparently capture their food in a somewhat similar manner, but this seems to be the case; the whalebone in the jaw of the whale being similarly placed as the teeth in the shoveller's beak and for the same purpose, which appears to be to enable each to retain its food and to allow the water to pass out of its mouth through the singular apparatus at the sides.

Now as to flat fishes. Have you ever fished in the sea for these curious exceptions to Nature's general rules, where uniformity in the two halves of most of her works almost constantly appears? If anyone got hold of one of these fishes only, and had never heard of such before, it would be set down as a malformation; but it is certainly not, and is as Nature intended these creatures to be. But I ask, have you ever caught them yourself?—(there are three equally common kinds which you may catch on the same spot, plaice, sandylayers, and flounders)—and observed that the two former kinds invariably have the portion of their heads with the eyes on

one side, whilst the latter kind sometimes has the portion of the head with the eyes on one side and sometimes on the other, reversing what would be the general upper side into the under one, and if you have observed this, can you account for it? I cannot.

Now why should flat fishes not swim in the same position as other fishes do? They however swim, as well as rest, on their sides; the side they rest on being white, the upper side being dark. The upper side is dark evidently for their protection, as when at rest, and when the fish works itself into the sand or mud, it is indistinguishable from it. When on the mud flats, left bare at low water, I have often observed the resting places of these fishes, when the tide had ebbed quietly. These kinds of fishes seem to be often brought in great distances by the flood tide, and carried out again by the ebb tide. Taking this into consideration, one wonders that fishes are not oftener left in pools than they are, and I have often wondered how it is river fishes are so seldom left when floods subside—I have rather got away from the flat fish—I was going to remark about their eyes, which somewhat resemble those of some of the crabs and lobsters, as the fishes appear to be able to extend them at pleasure; but about their position which is most singular—of course an eye would be of little use if on the under side, and so near the ground as they usually swim, and would be entirely in the way when the fish was at rest and partly happed up. The fish usually swims so near the bottom it has little to fear from enemies beneath it, and, apparently for its greater protection from enemies above, both of its eyes are placed on the upper side. I have seen flat fishes swim almost up to the surface sometimes, following a bait, but they get down again as quickly as possible evidently understanding it to be their proper position.

It is worth while to watch a flat fish making its bed: it does this in a similar manner as a shrimp does—the flat fish uses its fins to work up the sand so as to nearly cover it, the water causing the sand after being disturbed to settle on its back, it then lies invisible; the shrimp uses its finny looking legs for a similar purpose.

It is surprising how few people give themselves the trouble to observe any kinds of fishes, insects, birds, and such like living things; they think most of them were only created to be eaten, or to be wantonly destroyed if not eatable, whilst in reality, generally, they are things of real beauty—a smelt or sparring no doubt is very good to eat when nicely cooked, but it is quite as pretty to look at as it is good to eat; its form is perfection, and from it you can imagine its arrow-like motion through the water apparently without its slightest exertion; how few of us have observed, or would take any notice of, the almost electric-like motion of a sand-eel.

If the residents of the Arctic regions, as the walrus, seal, bear, ptarmigan, snowy owl, fox, and hare, could reason, what would they think of their lot, which seems to be cast in the very centre of desolation, especially in winter? They however know no other circumstances and no doubt enjoy life as other creatures do, apparently to us, better off. Nature which created them provided them with instinct, which certainly they stand much in need of, and no doubt this guides them as to their protection during the severest weather. I have often wondered how it is that the walrus, bear, and seal, are not often overtaken, when in open water, by such a severe frost as to entirely freeze them in when the ice forms suddenly and may last for months, or even years; no doubt their instinct directs them to places of safety under any circumstances, but in what manner, who can tell? The foxes in the Arctic regions have the soles of their feet hairy

like our rabbits and hares have, probably to repel the great cold. The ptarmigans Mr. Abel Chapman shot in Spitzbergen, which he kindly asked me to see (though I had no others to compare them with), appeared to be furnished with very much stronger beaks than the common species, and I think their feet were much stronger, probably to enable them to scratch away the frozen snow to get at their scanty fare, and their stronger beaks would enable them to get this from the icy rocks on which it grows; the two skins he had were those of cocks, and they certainly appeared larger altogether than the ordinary ptarmigan, and had very large tail feathers; they were in their grey or summer plumage. If the hares could think, what a life they must lead, apparently scarcely able to get a bite to eat, and in daily expectation of a merciless fury in the shape of a snowy owl eating them up; Nature no doubt has excused them having any such anxiety. Even the leviathan whale—by what means does it prevent itself being overtaken and frozen in beneath the ice? In such a case, if it could not get again to open water so as to breathe, I presume it would be drowned.

I dare say many persons have observed the dislike mallards, as well as other wild fowl, have to walk about amongst snow, yet they never seem to feel uncomfortable in water however severe frost may be—why their feet should suffer from the cold snow, and not apparently when on the ice, seems curious. Mallards, during snow storms, whilst they remain inland rarely seem to settle except in the water, I have often remarked that their footmarks are rarely or never seen on the snow near the edge of a running stream—though there may be still some met with in the open water, not yet driven to the sea, or out of the country altogether as they are when the frost and snow last a great length of time—when you do find footmarks leading

from the water to a spring or other unfrozen place, if you follow them and if a bird is there it will be most likely a wounded bird only. Can this be to prevent their being tracked by enemies.

When noticing this beautiful thoroughbred-like bird, I would ask how many, who perhaps eat his flesh (than which nothing is better when in good condition and properly cooked so as to be juicy), have ever considered its beauty, either dead or alive? When alive, look at him sitting in the water perhaps amusing himself as though washing, but which he cannot be doing, as none of the water splashed over him wets his compactly placed feathers—observe the grace and elegance of his form when he comes up from a dive, with a few little round balls of water moving on his back, but see how every one of them rolls like a pearl into the water—then see, after this amusement is over, how, with his silky feathered and glossy green and blue head, he brushes the rest of his plumage into the most perfect order, and, after this is accomplished, he takes his rest, if in a wild state, till evening just before dark, when he almost invariably flies to a distance to feed.

I have sometimes seen a severely wounded drake get to the edge of the water, amongst willow bushes, and then lie quite still, and even with its green head, not one person in a hundred would see him, so well does his plumage answer to conceal him from observation—and if this is so with him, how much more so is it with the duck. How dreadfully this species has degenerated in beauty of shape and plumage by domestication, and also in the quality and flavour of its flesh. The marvellously elegant pointed scapular feathers, being those on the back and falling over the wings of some drakes, more particularly in the Pintail and Garganey, seem to be so placed as to act as guides to the pearly drops of water running off their backs; but are they? If they were, it

would appear to be equally requisite for the ducks to have them also, as their habits are apparently exactly similar; and besides this the drakes only have these peculiar shaped feathers for a limited portion of the year; perhaps they are for ornament only. A very strange form is apparent in the tertiary feathers of the Mandarin drake, surely they can be ornamental only. In the Eider, and King ducks as well as drakes, the tertiary feathers are curved downwards at the points, this would appear to be for the purpose of helping the birds to get rid either of spray from the rough water, rain, or any water being on them; the Long-tail (drake only) has the pointed scapulars, as in the Pintail and Garganey drakes. Of all the kinds of wild fowl one has an opportunity to observe alive, none appears to me to be equal, in beauty of shape and harmony of colour, to the Bahama pintail, in it the duck and drake much resemble each other, their whole delicate form is perfection itself, and the exquisite gradations in their rich brown colour are charming to behold, their *tout ensemble* entirely surpasses that of the other species, lovely as the teal, wigeon, pintail, and garganey are.

Ducks, geese, and swans, when walking on the snow, often sit down and fold their feet amongst their flank feathers for a time, evidently to warm them; there is no doubt but that the breast feathers of such birds are entirely impervious to cold; by wrapping up their feet in this manner they are brought into contact with the warmth of the bird's body: you may also frequently see swans wrap up either one or both of their feet in this manner when resting on the water, and they often swim with one foot only when the other is so happed up.

SHELLS.

Shells of a species, one might almost say, are generally somewhat similar to each other, Nature as a rule approving of symmetry, yet with them as with others of her productions there are many exceptions. If we take the large scallop-shell or pecten, we find the two valves unequal in size, like its ally the oyster. In it the flat valve being coloured and the hollow one plain, it would lead one to suppose the hollow one rested at the bottom of the sea, but with the oyster I think the flat valve rests on the bottom of the sea; but though the two creatures resemble each other in some respects, why should one have a symmetrical covering and the other quite the reverse? No doubt the oyster frequently attaches itself to some foreign body, and the shell takes the form of the rock or other substance to which it adheres. I once had an oyster which when small had fixed itself inside the bowl of a tobacco pipe, the shell had become much enlarged, but, being tightly fixed in the pipe, it had become distorted. Then again, observe the form of the smaller scallop-shell or pecten, and you find the two valves both hollow; but why are the pectens so perfectly formed, and the oysters so irregular even when not attached to any substance? We have a pecten on our shores which, to a certain extent only, keeps its form and streaked marks, but it varies in shape according, I presume, to the locality in which it lives; in this respect somewhat resembling the spondylus which often fixes itself upon coral and suits the shape of its shell accordingly. Any one not accustomed to see oysters on the beds would scarcely notice them, so like are they to the ground on which they lie—the small stones, amongst which they often are, being covered with similar substances

as the hollow shells are, and which are uppermost, the flat shells seldom appear to have any extraneous matter on them. Now, are the shells so difficult to see for the protection of the creatures inside, and if so, from what kind of enemy—I would ask is that enemy man only? as if not, can we form any idea of the manner by which any other enemy might be able to distinguish them? When the oyster does attach itself to a rock or other substance it does so on the flat shell side.

Then again, the cockle or cardium. Everyone knows that the two shells of a cockle are alike, the only difference in them is the hinge and the beautiful toothlike arrangement adapted to hold the two shells together; but, to point out that no two things in Nature are exactly alike, who ever found two cockle shells to fit each other exactly, excepting the identical pair belonging to the creature? Then again, if we take the exotic heart-shaped cockle, it reminds us of a flat fish, as it must only rest on its side, the two shells being almost flat, like a pecten, but opening in the centre sideways. The animal must be a queer fellow to inhabit such a house.

Operculums appear only to be for the animal's protection against enemies when at rest and undisturbed by the rough sea, as when it is rough the animal has to hold on to the rocks by its cleaver-like process to prevent its being washed away. Each kind has its enemy. The common limpet's cleaver is very illustrative, and shews the creatures great power in adhering to the rock when it desires to do so, and its covering renders an operculum unnecessary. When the tide is out, we find the smaller buccinum or chuck attached to the rock by its cleaver, but when it is disturbed (except by the waves, when it holds on harder), it falls, and the animal retires into its shell, and closes itself in by the operculum.

If we look at many kinds of Murex, we find the lip appears always hard and fully formed, how is this? It would almost appear that when the animal wished to enlarge its shell, it must do so by a spasmodic growth of a quarter or half a circle, as shown by the number of the lips which can be traced on the shell. Probably, during this growth of the shell, the creature may remain in some corner till the shell is hardened, as the shells which we see have the fully-developed lip; this is a curious fact. In some species, when the lip is once formed, whatever size the shell may be, its growth is completed. Some species never show the marks of a former hard lip, whilst in other species the size and growth of the shell can be traced by the regular formed lips which have been overgrown; but in the kinds I refer to, one never meets with one with the lip in an imperfect state.

Then again, the genus Trocus, of which our common silver shell is an example. As a rule all of each species are symmetrical; one kind however is so eccentric as to gather on its shell stones or pieces of broken shells; but how is this managed, as the stones or other substances must be gathered when the shell is soft? but when once stuck on they give the creature's habitation an irregular and unique appearance altogether.



VEGETATION.

Some shrubs set their blossom-buds the year before they flower, as rhododendrons and azaleas, and I have little doubt but that in most hard wooded trees the embryo bud, formed in autumn, contains the flowers formed (where there will be any) for the next year. In consequence, the production of a fine display of flowers and crop of seed or fruit will depend on two seasons, the former one favourable to forming the flower bud, the latter one to bring the flowers, fruit, and seed, to perfection. This is not the case with roses and plants of rapid growth, in which the flower buds are formed in the new wood very shortly before they expand. In the raspberry, buds are probably formed in both ways, the old canes flowering, but in some cases if they are cut back, the luxuriant young shoots will produce flowers the same season.

Many bulbs also have their flowers formed the previous year, as you will see if you divide a hyacinth root in its dry state. You will then find the flower shoot with the number of flowers already formed, and which are merely developed by planting the root.



SOME MISCELLANEOUS REMARKS.

It is singular when you consider the different periods of time it takes to bring creatures to maturity—a butterfly or moth perhaps a year, whilst a pig only takes as long, a horse perhaps a couple of years, and an elephant perhaps half a century.

Did you ever see a flock of midges or gnats dancing jigs in the air during a heavy summer rain? How do they individually prevent a drop falling on one of them, which if it did would displace it at any rate? Is their sight so perfect as to enable them to dodge the drop, or does the drop falling displace so much air as to push the insect out of its way?

In conclusion, I must apologise for the regular jumble of my written thoughts, which have been jotted down as they arose when writing. Manuscript is of little use now that printing is so easily accomplished, as printed matter, whether readable or not, is so much easier comprehended. Many persons, who would not trouble themselves to read manuscript, will read what is in print, and if it is printed for one's own amusement only, it is easily referred to in after years, and perhaps when older one likes to be reminded of what one's thoughts once were, and to see whether they still correspond with one's former ideas on subjects written about.

May I add that the consideration of Nature's works often leads us to the consideration of Nature's God. Perhaps by way of definition between right and wrong, and good and evil, we might take for illustration a round object, let us say a globe with the poles and the equator, as the world is so suspended in space and we will call the north pole the top and the south pole the bottom. Now so far as religion is concerned we may fancy ourselves each travelling or

wandering about on this during our whole lives. As the north pole is the top, we will say the north represents the highest church party, and as the south is the bottom it represents the lowest church party. At the equator we will consider the moderate (may I say sensible) party—neither one nor the other—those who do not trouble themselves about trifles, but who are desirous to do their duty, which embraces religion pure and simple, and who dislike the troubled and stormy waters surrounding our imaginary poles. Besides our travelling in the world during our lives, we must not forget that our great spiritual enemy is there also, constantly in our midst. Now I fear religion is one of his chiefest subjects by which to beguile us. Is it not he who has cunningly raised the questions about high and low church on purpose to perplex us, and create dissensions amongst our spiritual leaders? I would ask the plain question from those of either side, Do you consider the carrying out of your particular views essentially necessary to the salvation of the souls of your followers? I venture to say the answer would be evaded. If so, why make so much display of things not material to the great aim of every honest man? Moderation is good in all matters, and he that is moderate will be so in everything except his anxiety to lead all people he comes in contact with in the narrow way which leads to everlasting life, and which I have suggested is the imaginary equator alluded to. Again I ask, Why distract people with perplexities unexplainable as to their origination which does not appear to be divine? What are really wanted at the present time are those who will join together with heart and soul, and with a long pull, a strong pull, and a pull altogether, to try to keep all who are not too proud to be taught to keep as near as possible on this narrow line, which alone will lead to salvation.

Perhaps only a very limited space around the equator on either side is safe to travel over in religious matters, and if this is exceeded, the further we get either north or south, the less likely we are to get safely again near the equator. Should we unfortunately allow ourselves to drift too near either of the poles, we will be certain to be helplessly lost in uncertainties which are of no use, excepting to draw our attention away from matters really important. If both high and low church principles are right, why carry matters to extremes and fight about such apparent nonsenses? The church should be one of peace; if it is not, there is something totally wrong. Two parties diametrically opposed to each other cannot both be right, and if the most pious and learned men in the country cannot agree as to what is right, what chance have the laity, the illiterate, and the poor, of judging? The only thing for them to rely on is common sense, which must tell them there can be no fashion in religion, which altereth neither by time nor circumstances.

An old saying is "Where ignorance is bliss 'tis folly to be wise." Did this mean those who know better than the very ignorant are not to try to instruct them, but that they should be allowed to pursue their wrong doing? I think not. The shape of a globe with the poles and equator might also be our symbol to guide us somewhat in the way we should go—the north pole being perfection, to which stage no human being can attain; but the further from the imaginary equator we can keep, on the north side, the better. The equator marks the line we should never pass southwards. Our imaginary south pole is precisely the reverse to that on the north, it being perdition itself, and our care should be never to be on the south side of the equator, as if the line is once passed it is most difficult to get back again, and if once passed it is surprising how easily it is to drift further from the equator.

It must be presumed all men and women have or had consciences at some periods of their lives. Probably some have gone so far to the south of the equator their consciences now never give them any concern. The further southwards we go the less fear of God we have, and if we have lost this sense, we have forfeited the claim to even the beginning of wisdom, and we get so accustomed to this state that it becomes second nature to us.

There seems to me to be the greatest difference in what is termed taste and style. The two words seem to express different meanings. What I remark applies equally to men and women. Those who have the former (good taste), simply use their own judgment as to what is becoming, as well in personal appearance as in other matters, and use what is becoming only, and they are content with the good opinion of the few and gentle; those who have not the former, aim at the latter (style) only, and go in for it without consideration, excepting to see how they can follow, or perhaps they wish to lead, what is the fashion, and will be led by it into any state of extravagance, totally irrespective of its suitableness, either in their personal appearance or otherwise, merely to attract the attention of the many and perhaps the vulgar.

Another old saying is that "Manners make the man" *i.e.* the gentleman. Incongruous dress only seems to be necessary for the so-called lady, and manners may not be required, but they certainly are required for the gentlewoman. Some women are gentle however born; others, though high-born, require a certain amount of training, and to be taught what self control means before they become entitled to the cognomen of gentlewomen.

Is it a lawful question to enquire who it is who invents fashions for women? How is it sensible women do not find this out before adopting them? Surely the fashions ought to be

capable of being fathered or rather mothered upon some responsible and respectable person; but perhaps this is a matter better not enquired into, for fear the originator should be Satan himself—at any rate if he is not the originator he has more to do with it than is generally supposed. True it is people need not follow the fashion unless they chose; but do fashions not lead the weaker part of humanity into irresistible temptation which too often ends in everlasting ruin? If some women wish to make themselves out to be equal, if not superior, to men, surely if they are, or intend to be generally, the first step to take to shew their equality would be for them to dress themselves like rational beings, and to give up a great deal of their frivolity. No religious woman could be guilty of any such supposition, were she to consult the Scriptures; matters are going the wrong way in this respect, and perhaps they may create greater wickedness than the promoters of such will like to have to answer for.

It seems questionable whether the love of dressing beyond girls' stations in life, and which has been ingrafted in their minds by observing it in their mistresses and their families, or those they have been brought in contact with, has not led to more crime and misery to them than any other cause whatever, not excepting drink itself. Now this seems an alarming statement; but I fear a true one. Amongst a certain class of people dress alone seems to point out the social position. I remember, many years ago, a boy punishing another worse dressed boy than himself for insolence, when his retort was that, "When he had his Sunday clothes on, he was as much a gentleman as himself." Now the Sunday clothes would hardly alter the character of the boy; but certainly, at the present time, the Sunday clothes of the girl might enable her to be called a lady—but the name would hardly carry the distinctive one of "gentlewoman." Now I would

ask how many ladies can claim the latter title? Can those who have queer tempers? The true gentlewoman is she who understands her position, and conscientiously acts up to it, and it only, and who sets a faultless example to all her inferiors, so as not to lead them astray.

At a time when there are so many philanthropic people who appear to be desirous to discourage vice, this is a question of great importance. The old maxim is that "Prevention is better than cure." Now when it is so conclusively proved that the love of dress often leads to vice, why will not society generally give a helping hand in the right direction and try to put a stop to extravagance in this matter by using some self-denial and showing a good example? Let those who have wealth, and can afford to spend large sums on dress, expend it on some fabric which cannot be imitated, yet quiet in composition. As it is, one cannot walk along the streets without observing the miserable attempts at fashions totally unsuitable to the wretched wearers; but instead of being treated with scorn and contempt, as they generally are by many who should have set them a better example, they should be subjects of our pity, and we should all consider whether we were not, to a certain extent, to be answerable for the position they occupy, in consequence of our not having set them a better example.

When one reads the police reports one often sees some wretched man severely punished for striking his wife. Are we to suppose all women are angels? I would like to know in how many cases the man acted as he did under what one would consider the greatest amount of provocation from his victim? Certainty of punishment is perhaps the greatest deterrent of crime, and I would be the last person to try to excuse any one who deserved punishment, at the same time, where the provocation was great, and had been of frequent occurrence, the pun-

ishment should be meted out accordingly. I do not believe in husbands treating loyal wives badly; and I much fear the sympathy shown for women, in very many cases is totally undeserved, only encouraging waywardness in others and actually leads to the increase of crime.

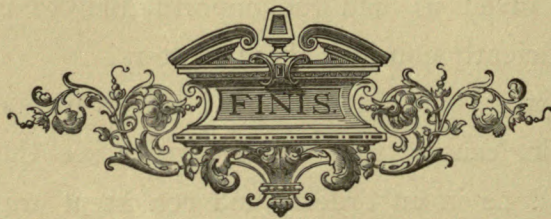
The last Act of Parliament, relating to the property of women, seems to me to be a sad blow to domestic happiness, and entirely opposed to what is religiously right. If marriage was merely a mutual partnership which could be dissolved it might be different; but to legally constitute two masters in one establishment, when each choses to have his or her own way—what a dismal look out there is! Fancy a washerwoman entertaining her company, and her husband coming home expecting his dinner ready for him, and being treated with contempt, as he certainly will be in many cases, and what can be his remedy? I presume submission only.

The veriest outcasts, even the worst criminals, probably if they had had the opportunities of knowing better, as so many of us have had, they would not have been in the position they are now in, and most likely at the last perhaps they will receive a milder punishment than some of us may do. The talents given us, and the opportunities to use them, will then appear to us face to face. Do we sufficiently consider these matters?

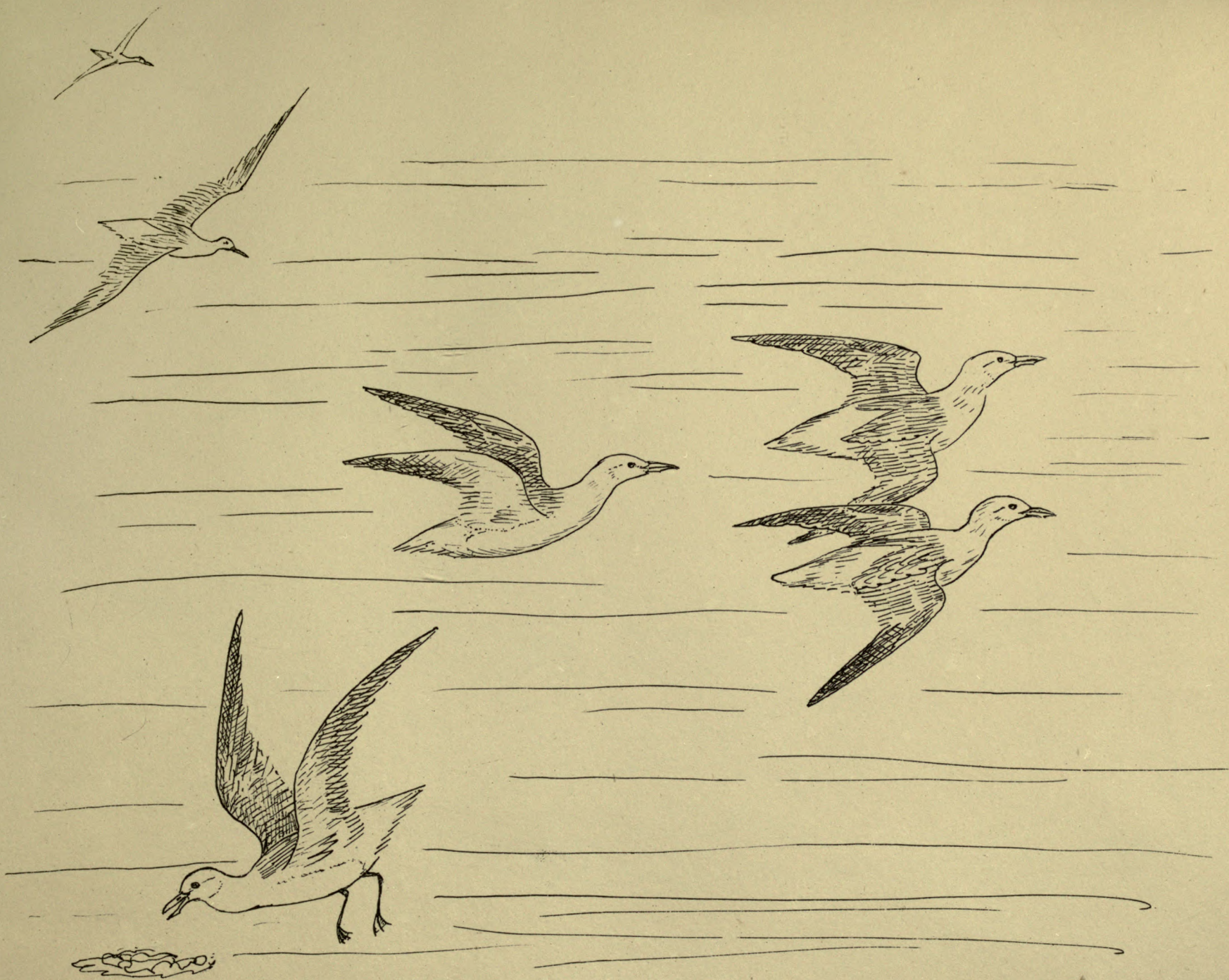
I add that I consider paying some attention to Nature's works causes us to think seriously, and gives exercise to the brain, causing the eye to like to see things in order, and also causes us to like to have all things done in an orderly and consistent way.

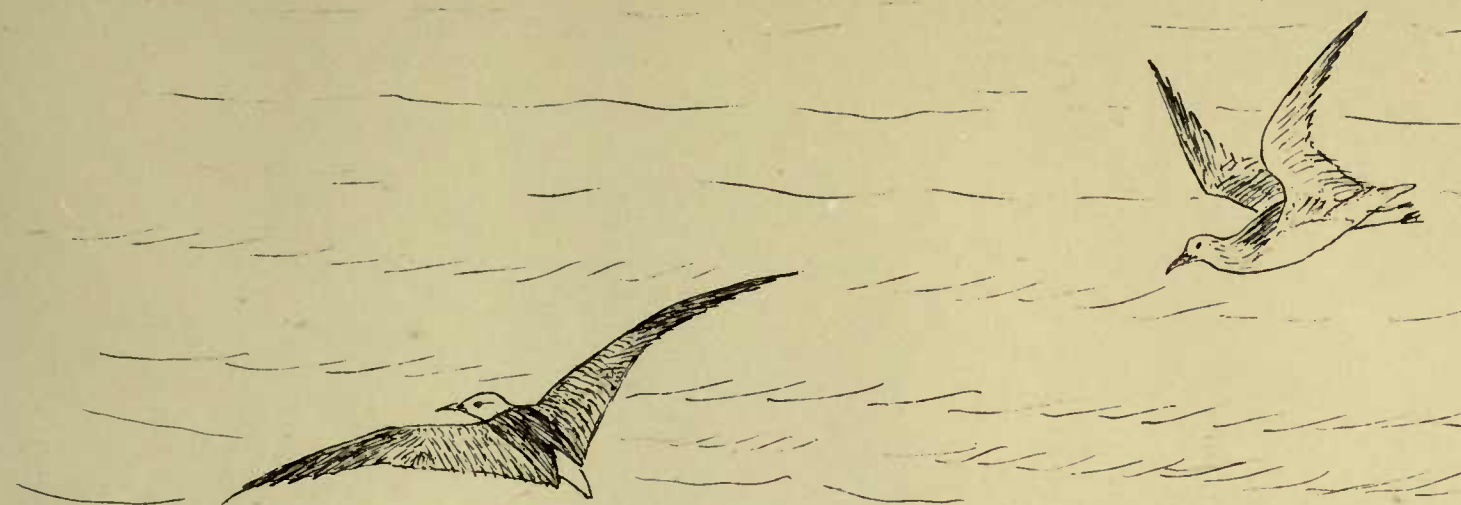
What seems to be the fashion in the present day is for the poor to be competing with the rich, and almost each one trying to pass themselves off as richer than they are.

I confess I like to see all things exhibited, even those for sale, to the greatest advantage, particularly what is for our food. For instance, how tempting fish looks when not crowded but nicely displayed. Surely it is not necessary for a shopkeeper to display his whole stock or what might be considered such. Why can he not replace constantly what is sold and have a tidy looking display? Why also display the whole stock of game? Nothing looks prettier than game neatly arranged, but the present system seems to be to have such a quantity displayed day after day, and it seems to get so tossed about as to generally look in bad condition. One would think any one having a nice and orderly kept larder would take fright at the disorderly appearance of the game one usually sees exposed for sale. Why should this be? It must be that bugbear—fashion.













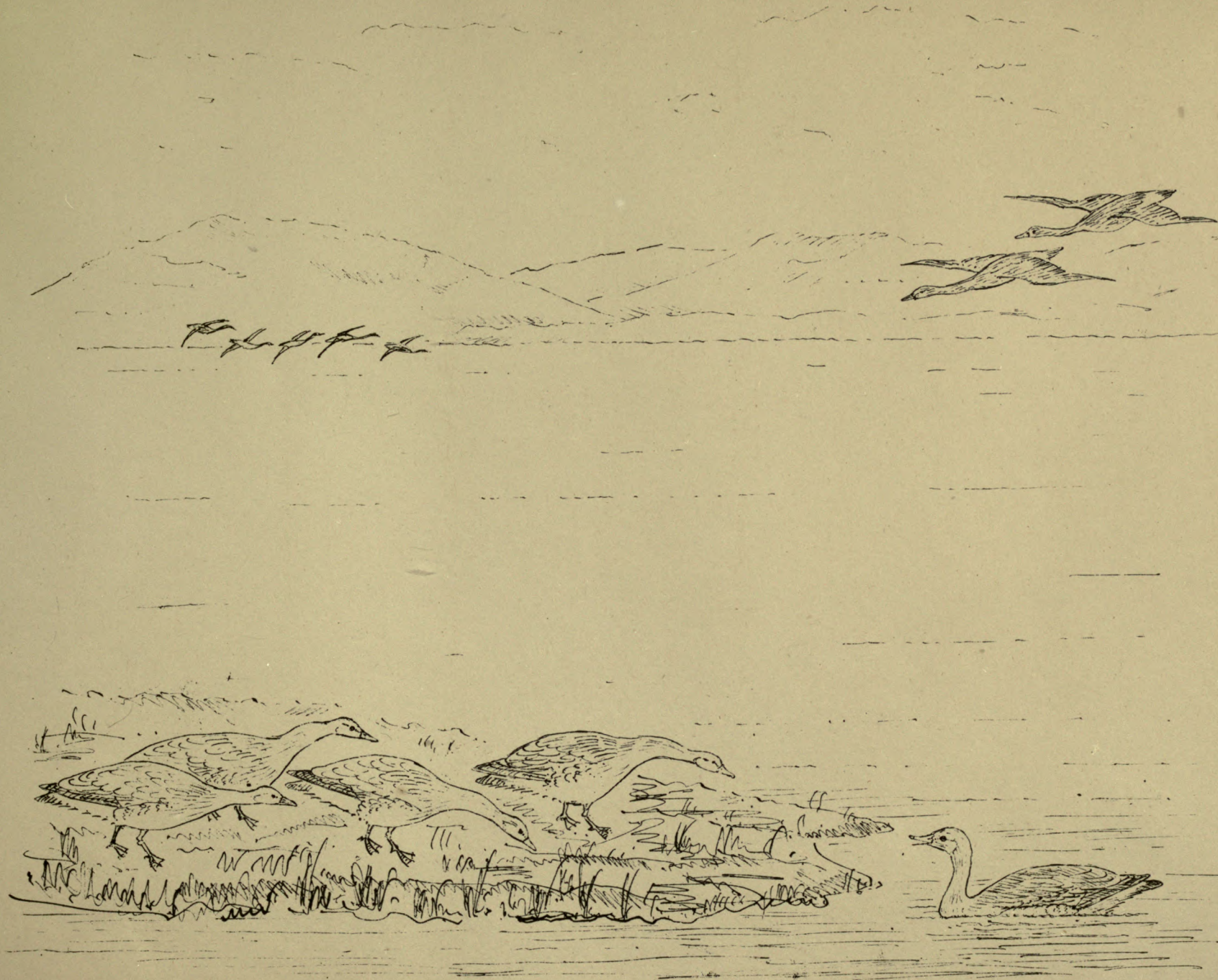


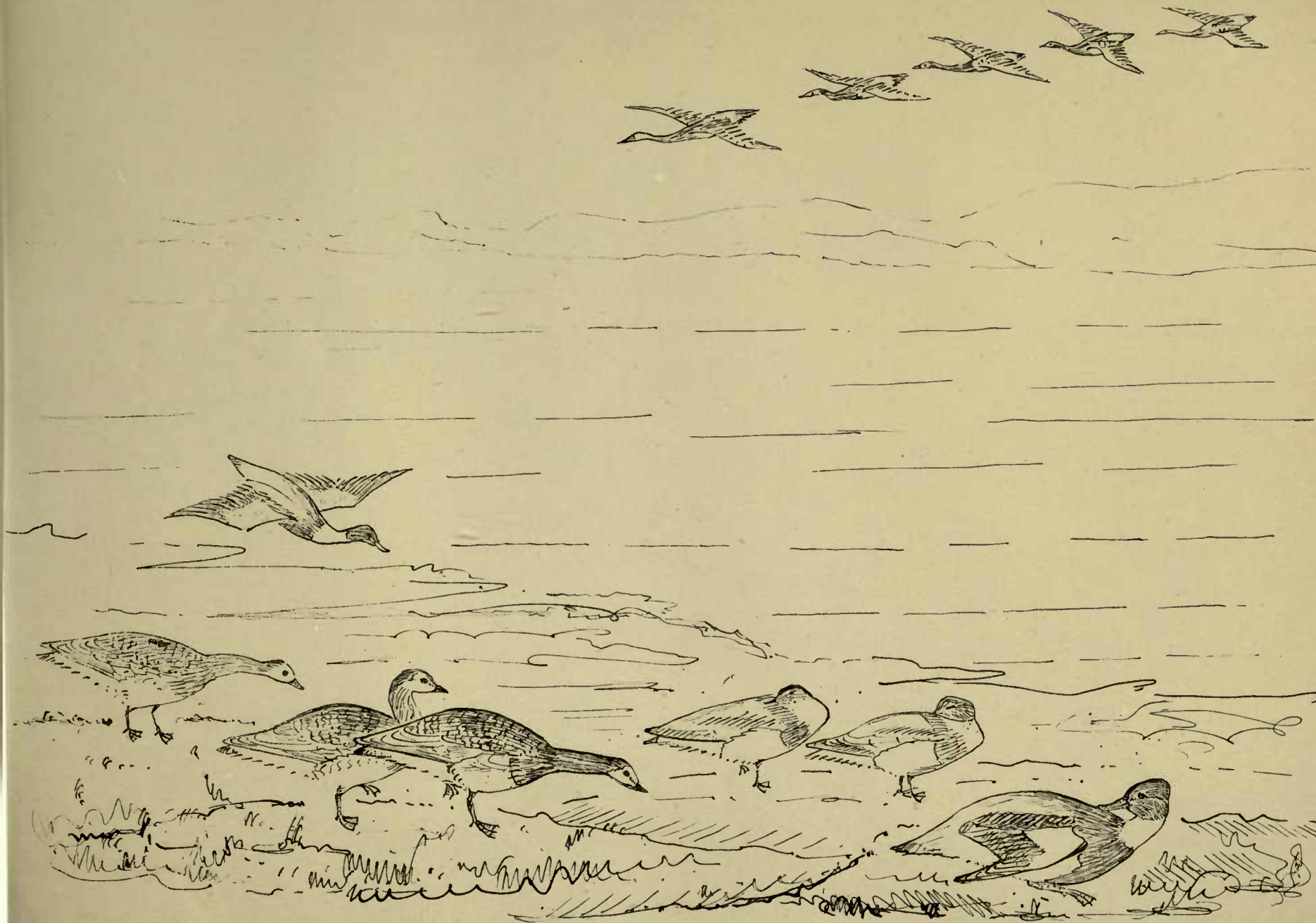
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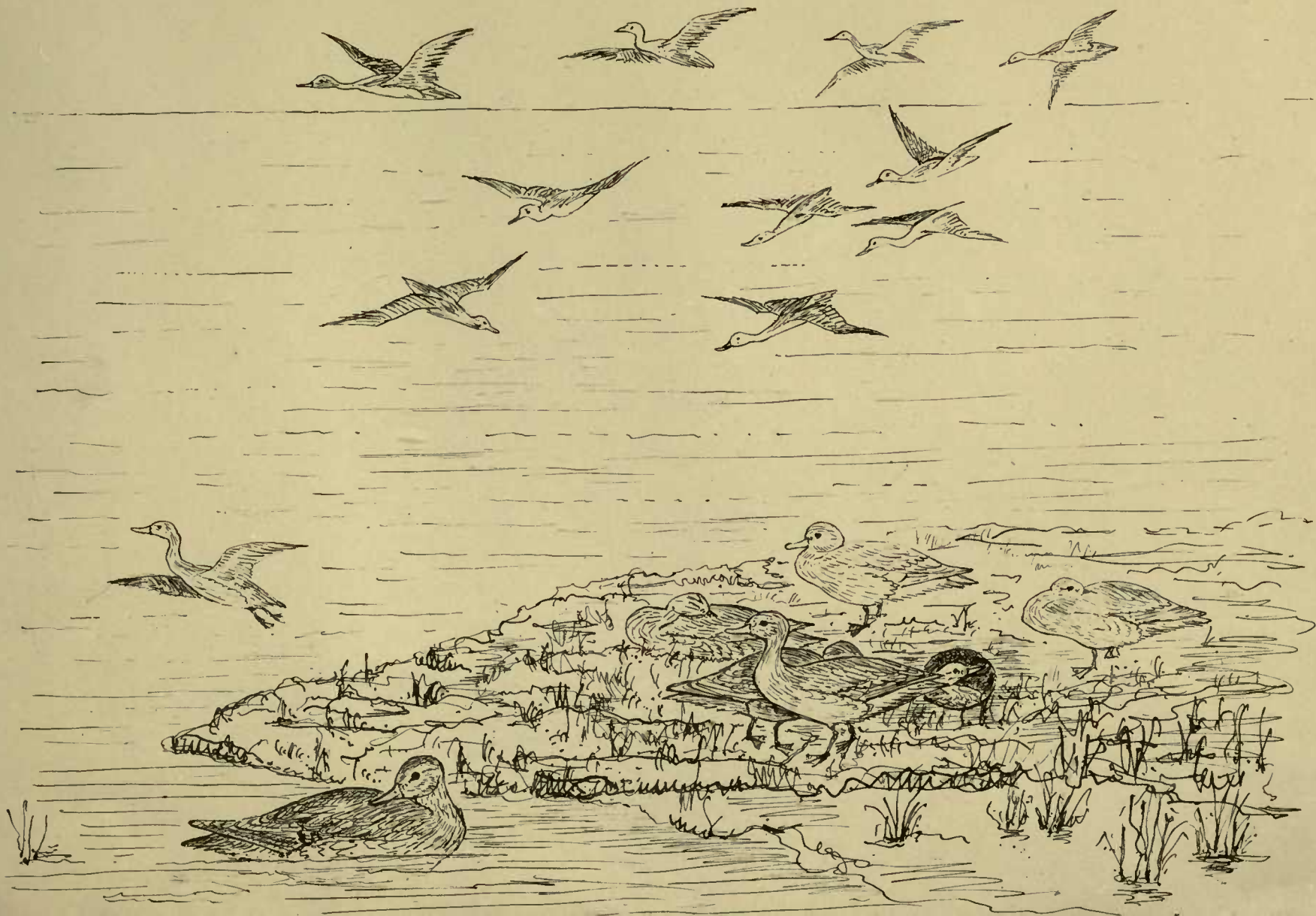








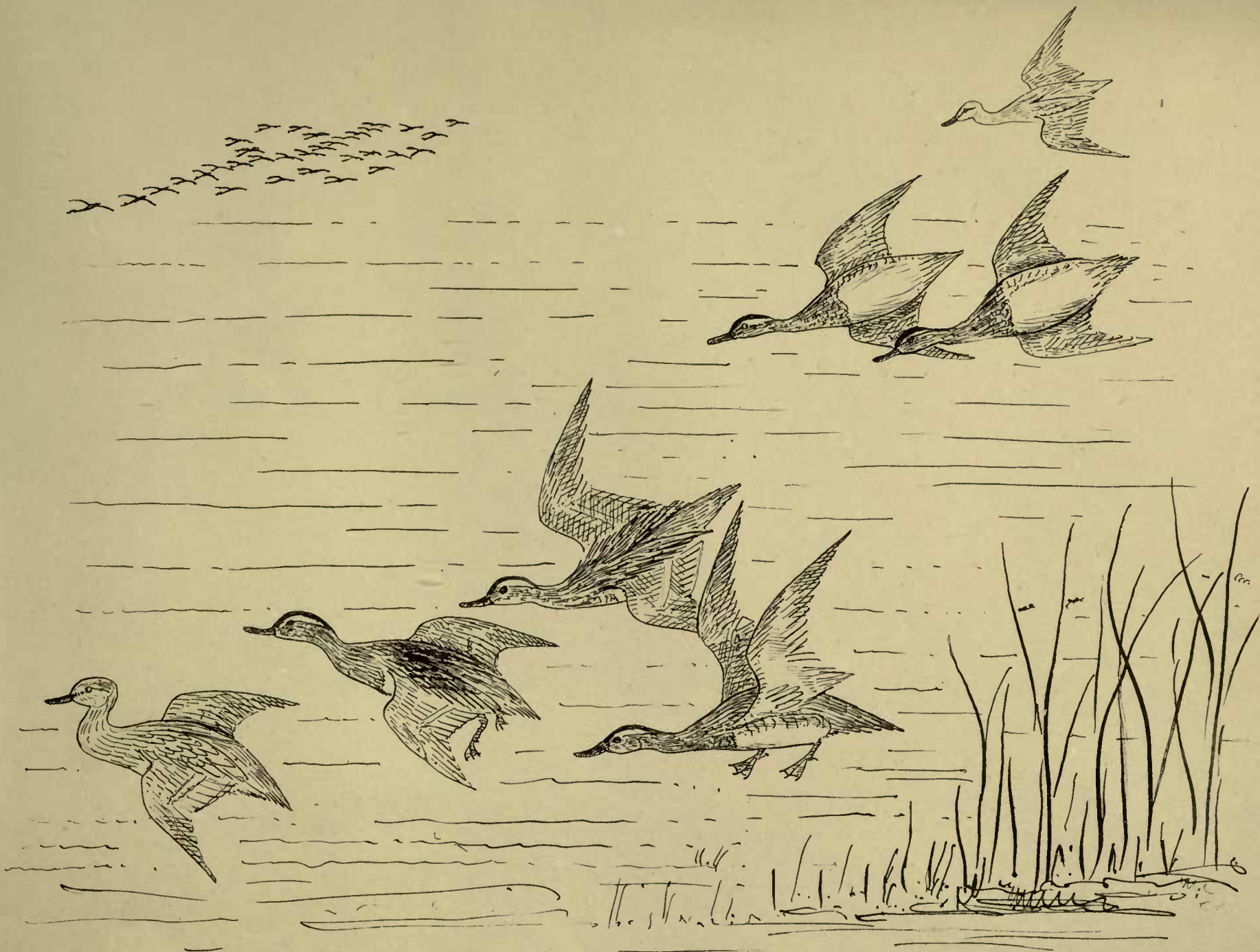




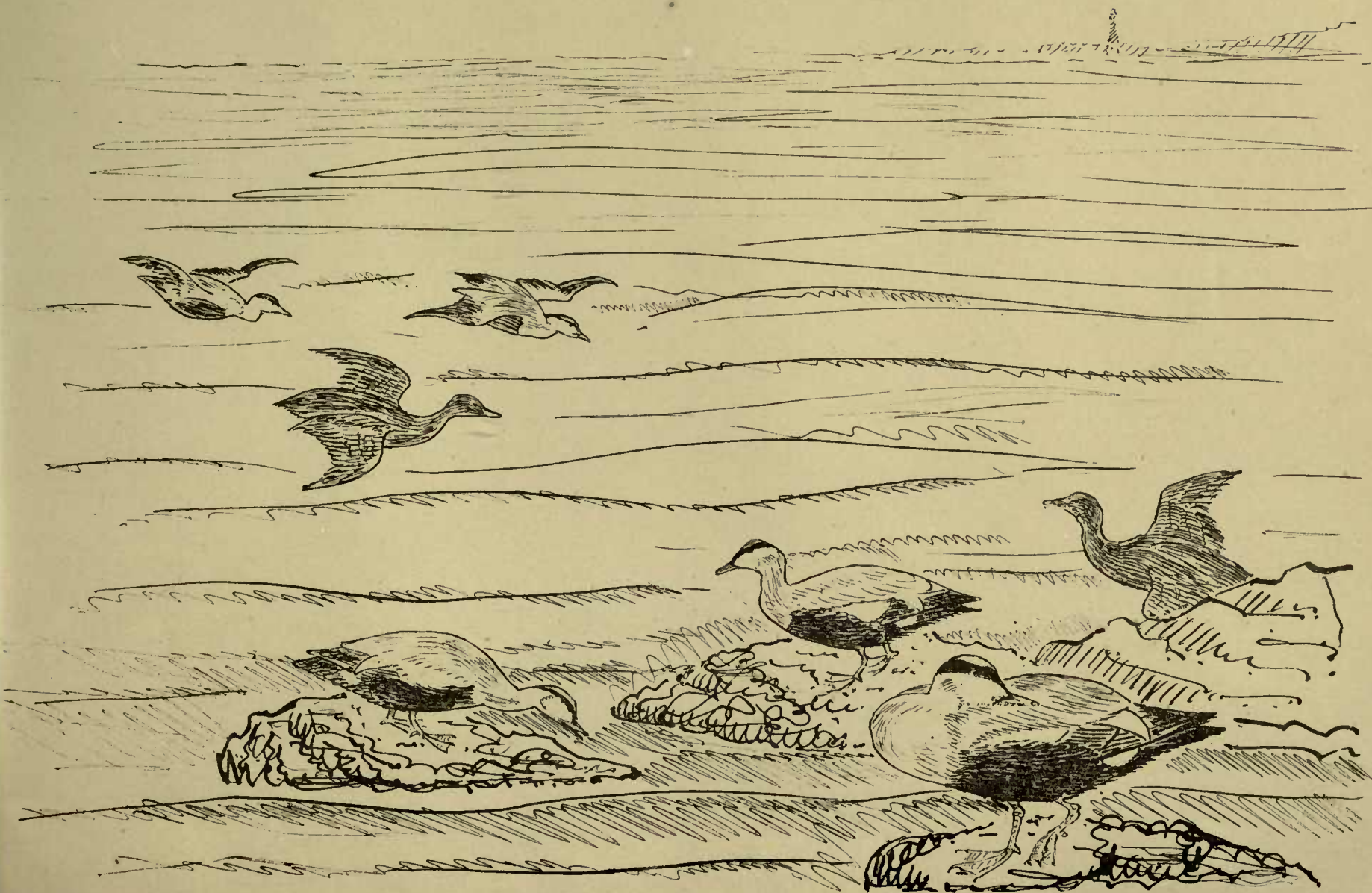


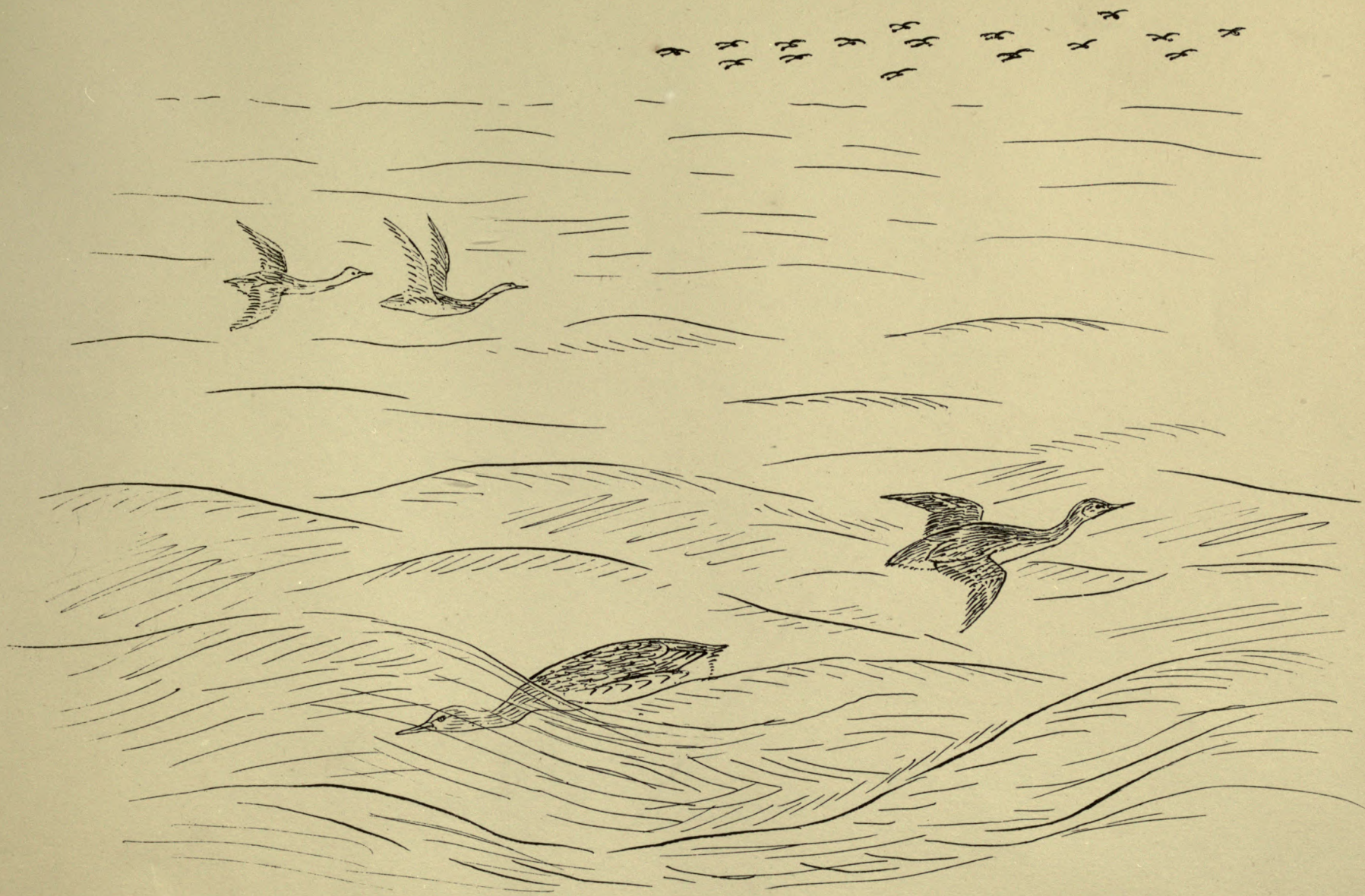


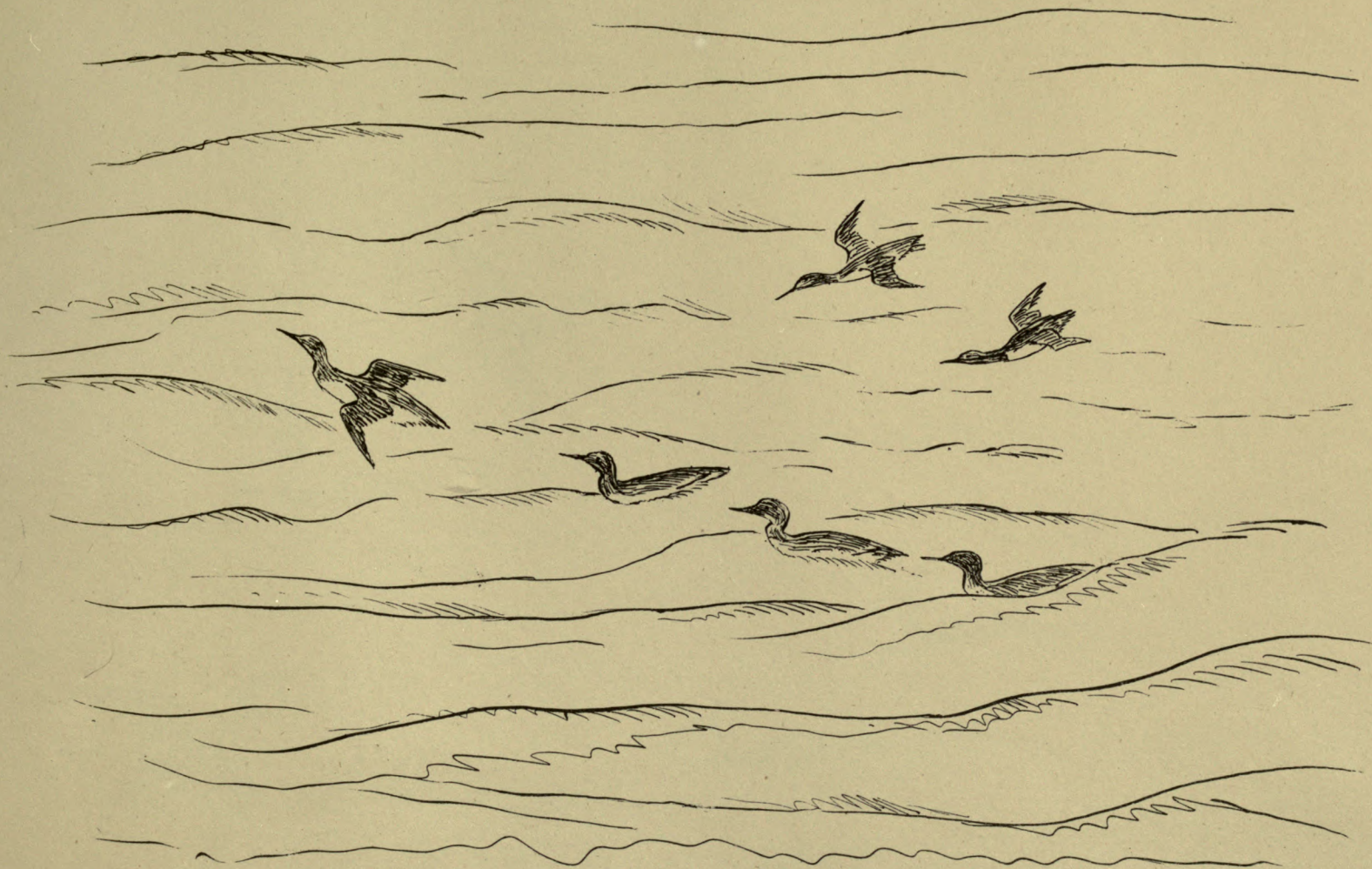




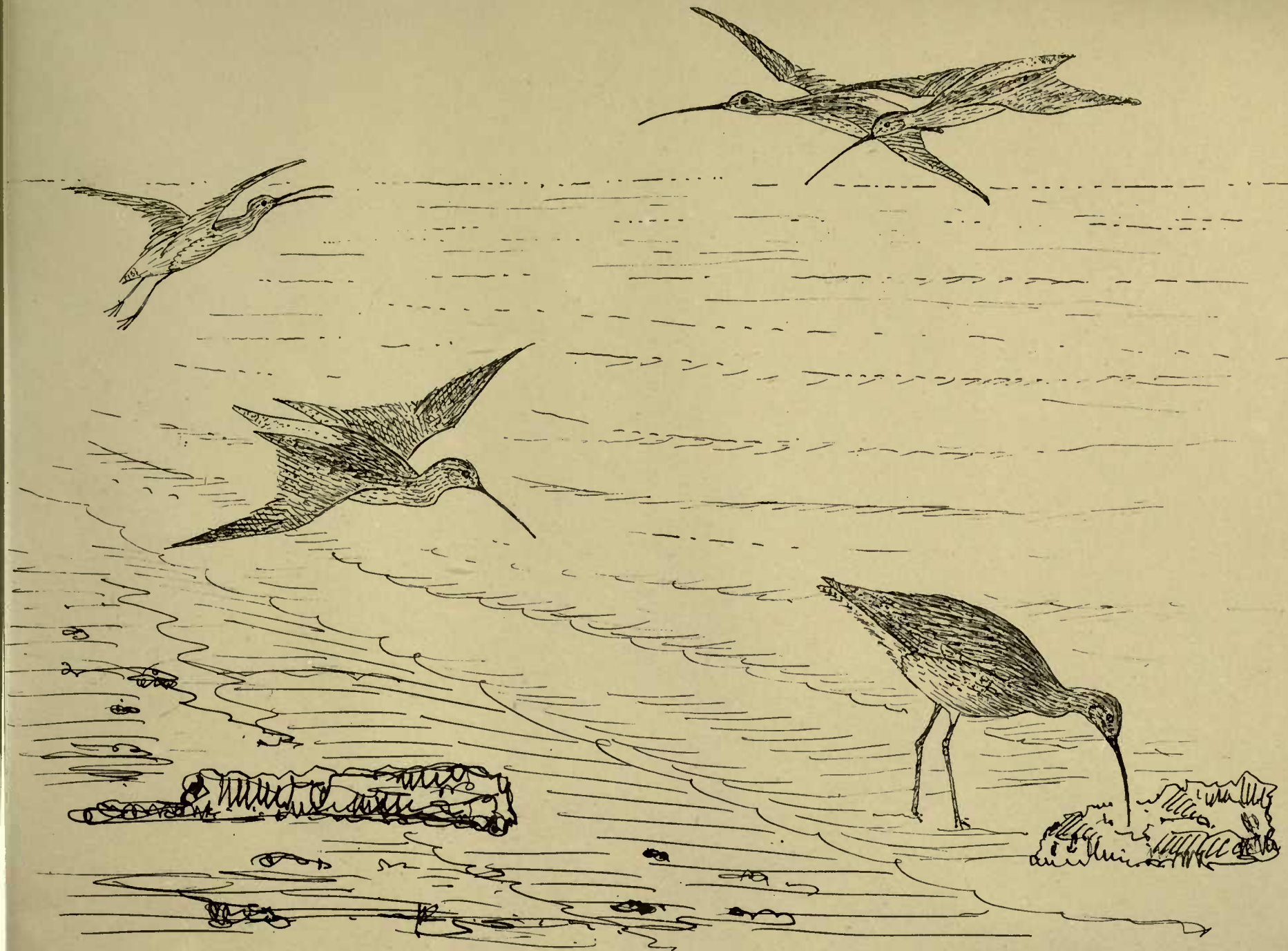




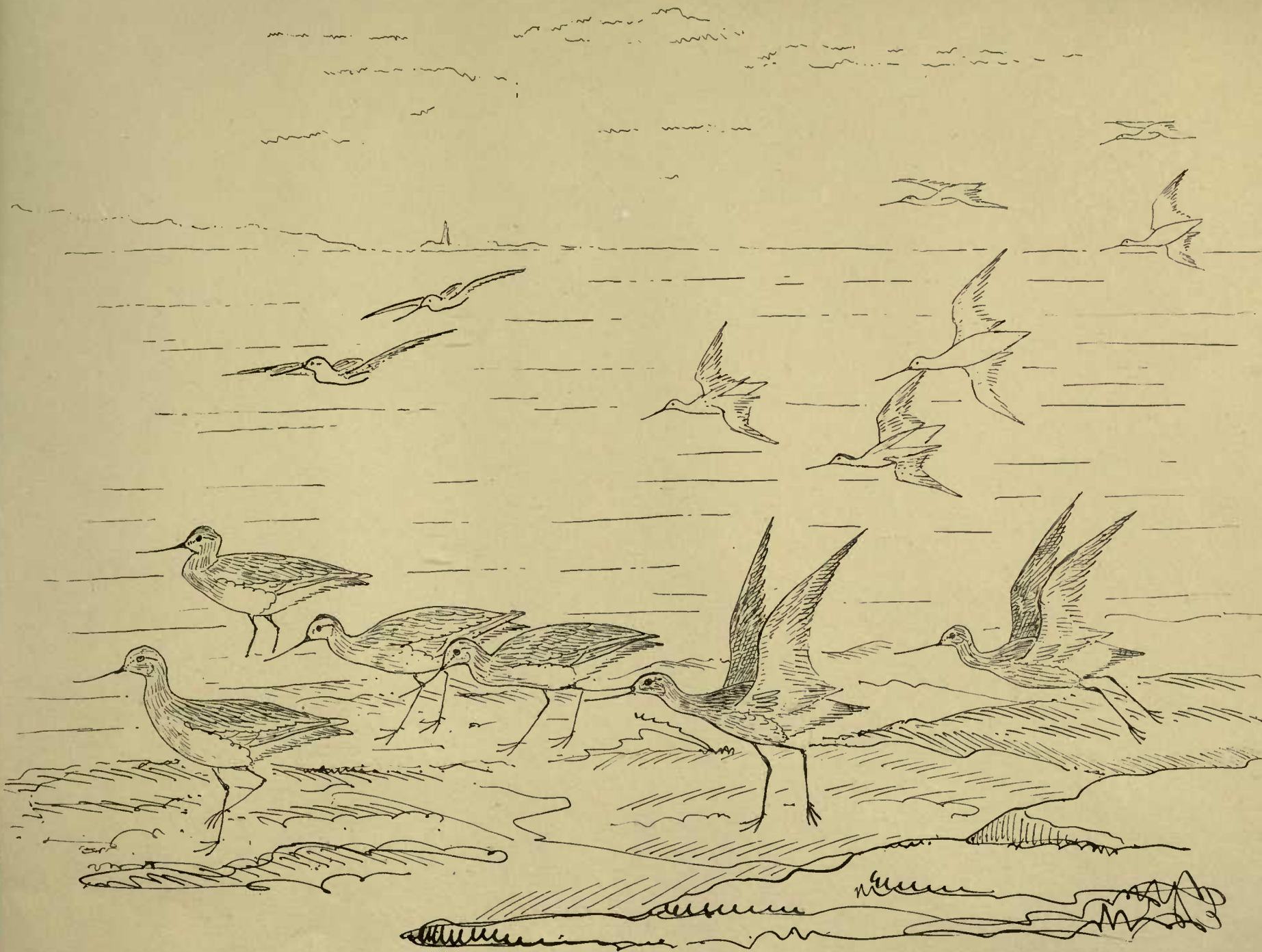


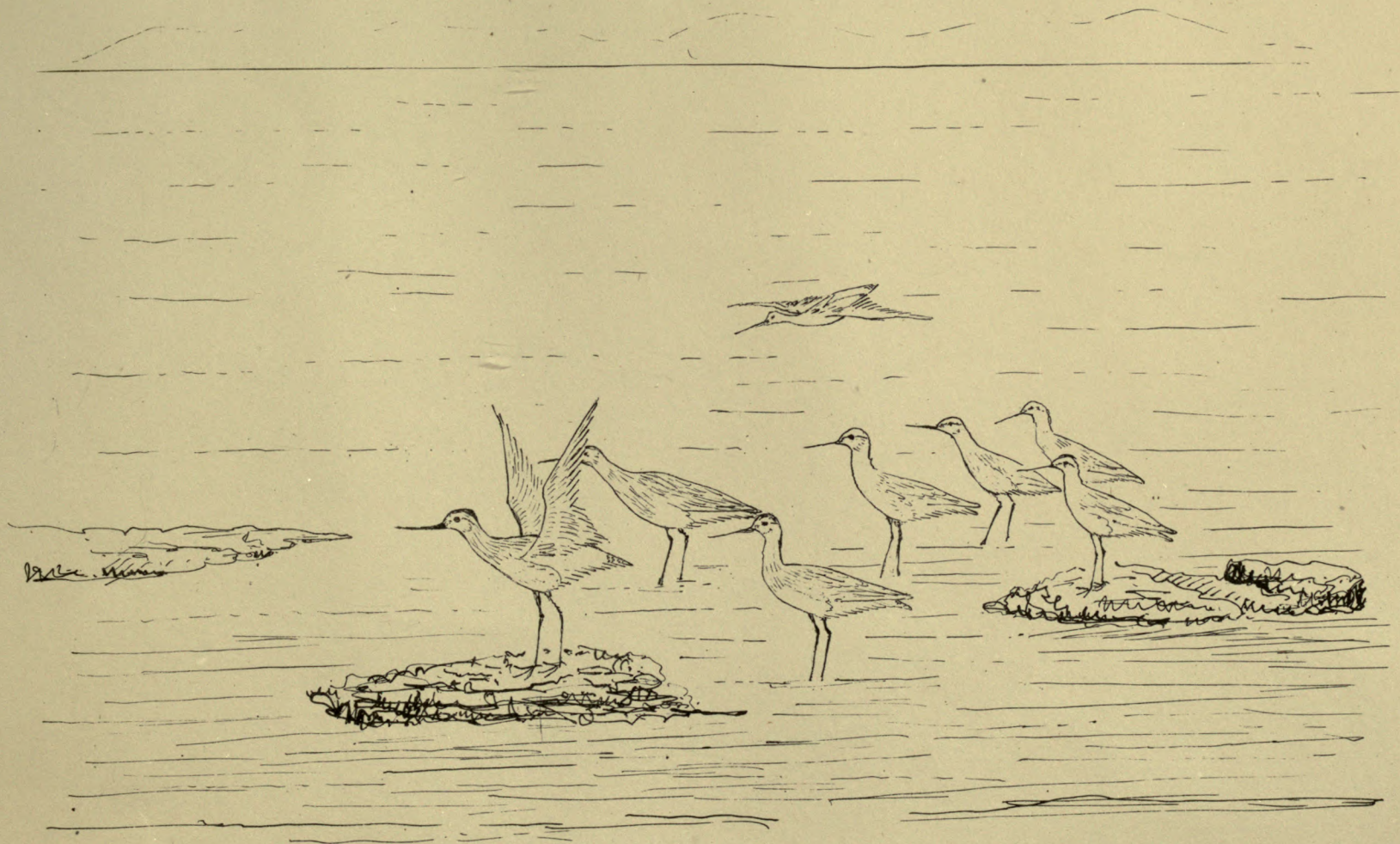


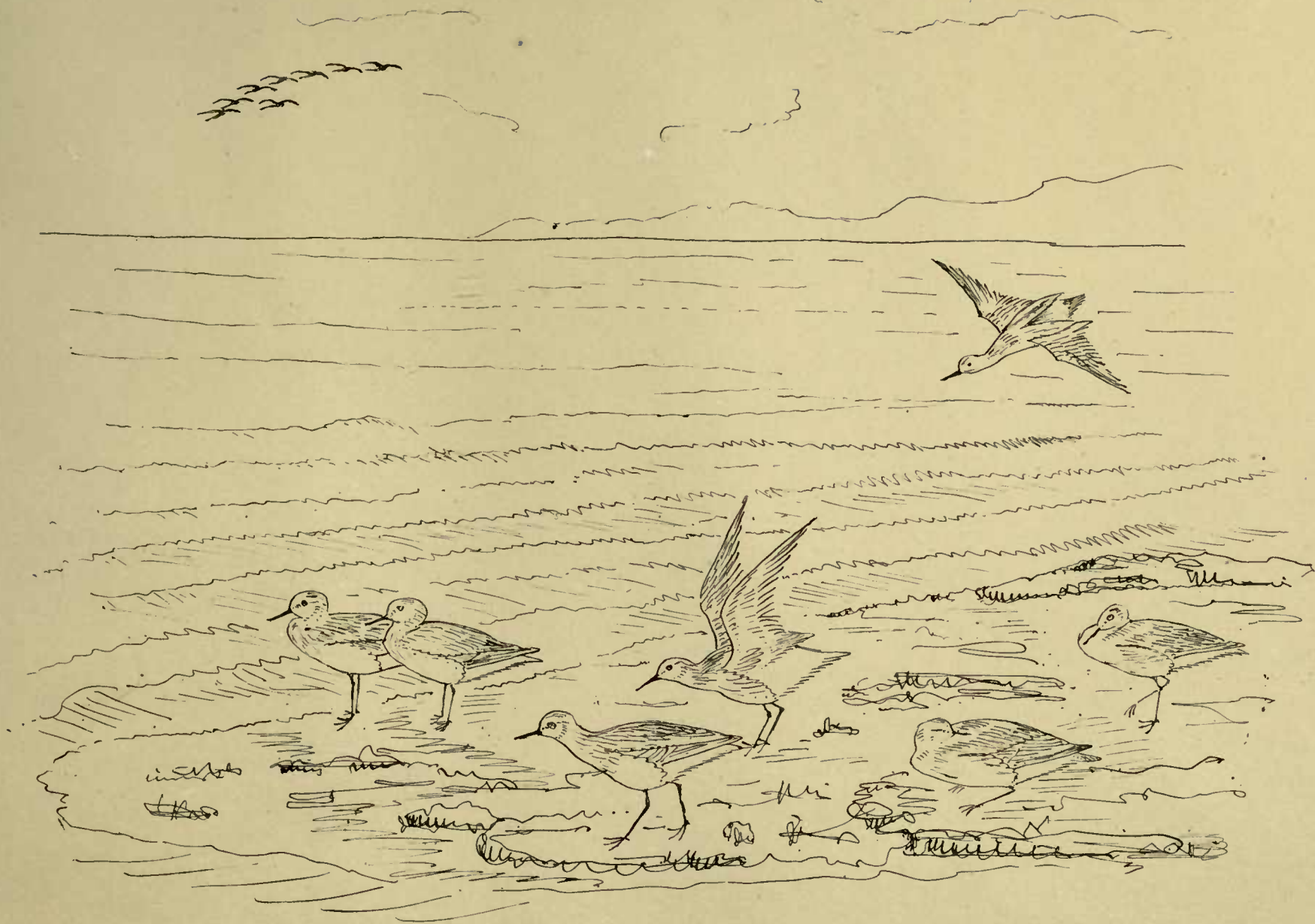




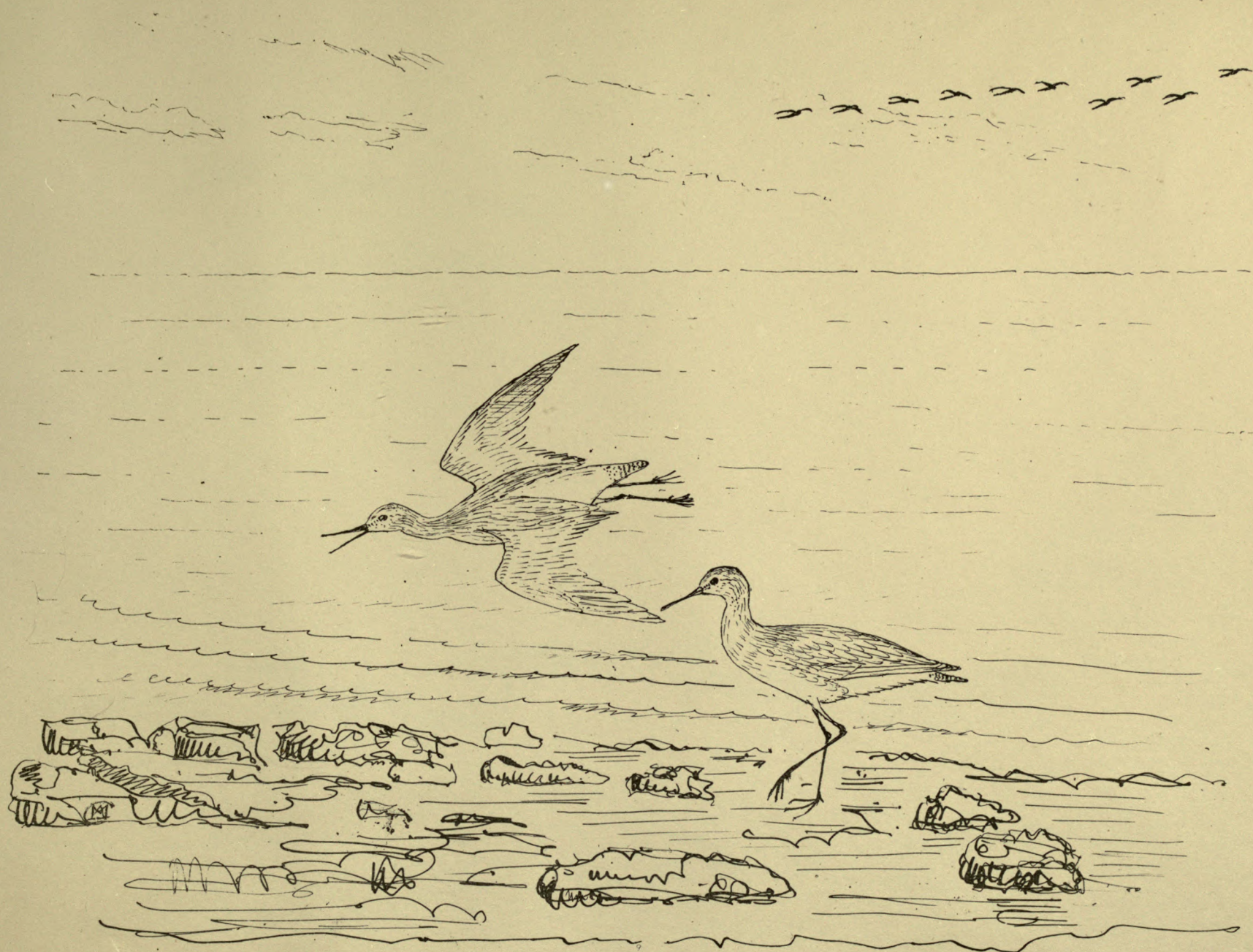










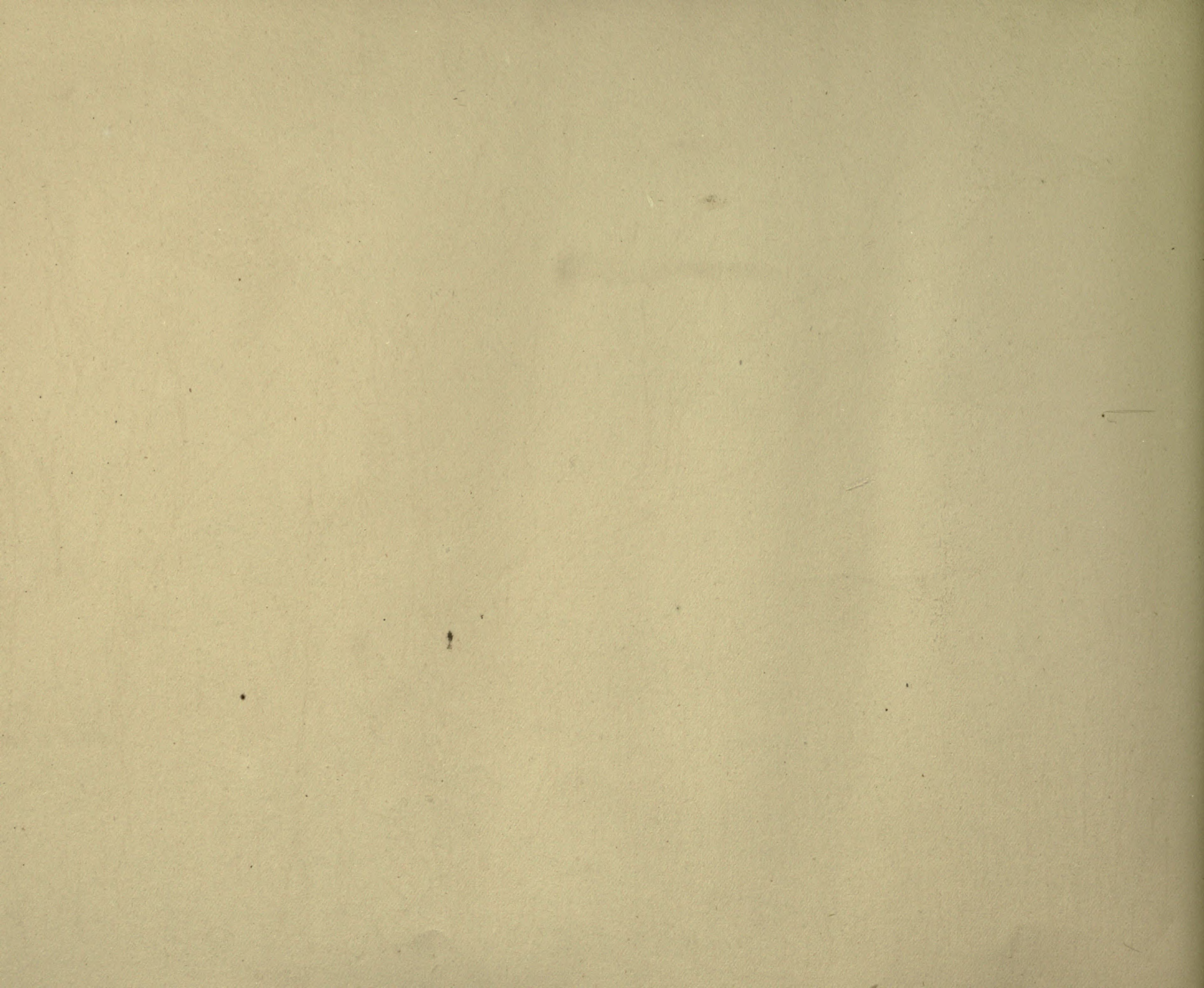






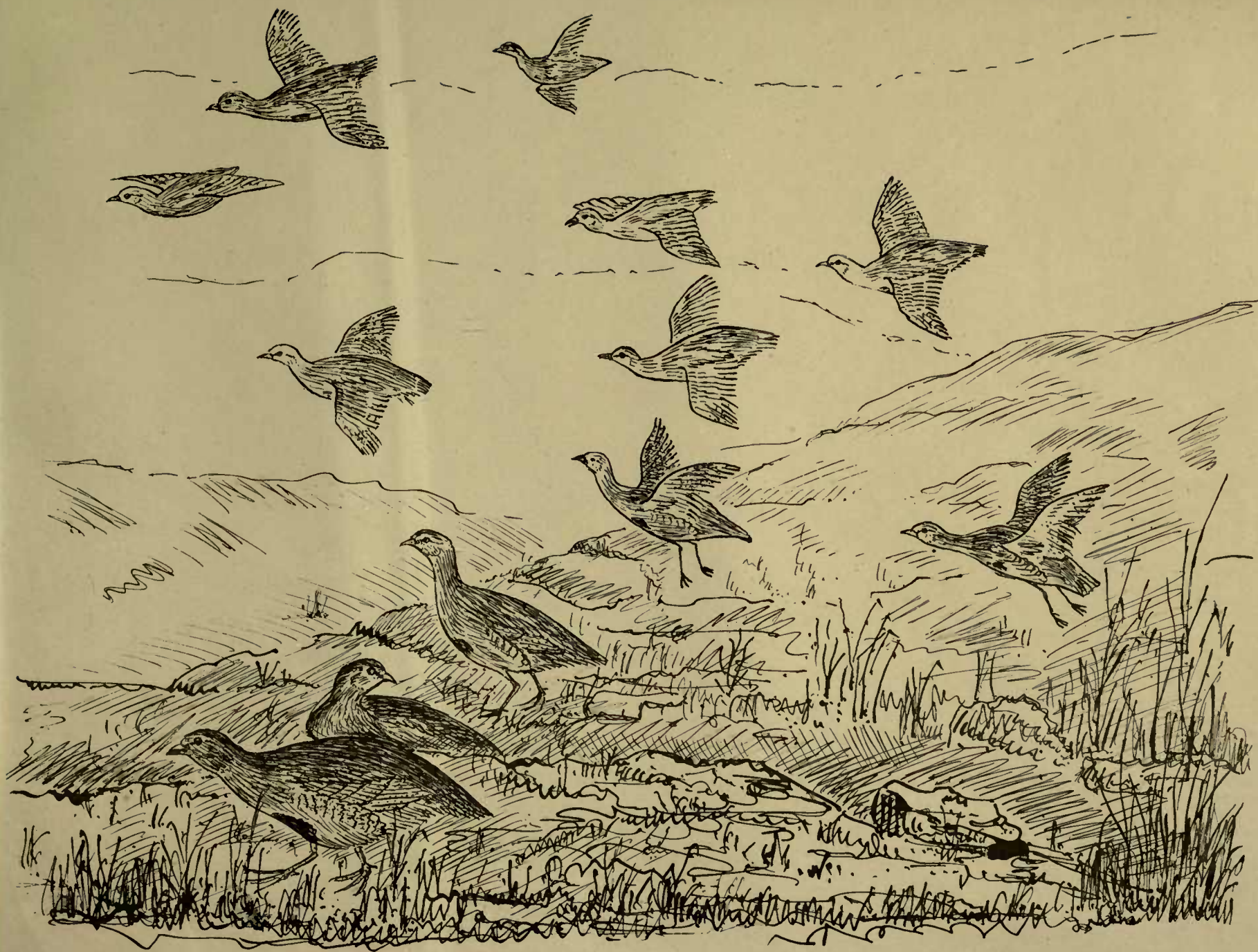












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